14th Annual International Performance Management Association Conference

May 17-20, 1998, Clearwater Beach, Florida

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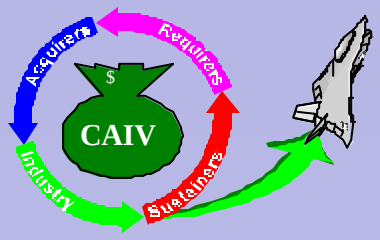


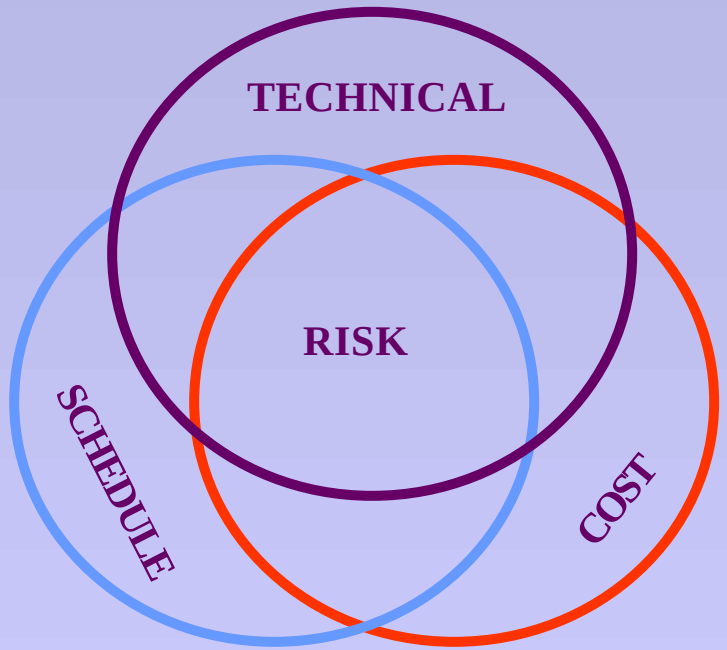
Earned Value and FFP Contracts

Presented By
Mr Tony Finefield
Air Force Space & Missile Systems Center
Cost Division
19 May 98

EARNED VALUE MANAGEMENT REQUIREMENTS

- ORGANIZE TO BE EFFICIENT
- DISTRIBUTE THE CONTRACT SCOPE OF WORK
- SCHEDULE CONTRACT WORK EFFECTIVELY
- APPLY ADEQUTE/APPROPRIATE RESOURCES
- PROVIDE FOR OBJECTIVE PROGRESS INDICATORS
- INITIAL BUDGETS = INITIAL CONTRACT VALUE
- *COLLECT ACTUAL COSTS vs. BUDGETS*
- ANALYZE SIGNIFICANT VARIANCES
- *PROJECT IMPACTS TO FINAL COSTS*
- INCORPORATE CHANGES EFFICIENTLY

INTEGRATED PLANNING



WHO NEEDS THE VISIBILITY?

FFP EVM at SMC

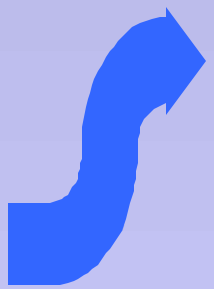
- NOT AUTOMATICALLY APPLIED
- TECHNICAL/SCHEDULE RISK EVALUATED
- COST RISK TO THE CONTRACTOR IS A FACTOR
- PAST PERFORMANCE IS CONSIDERED AS A FACTOR
- APPLICATION TAILORED TO THE PROCUREMENT

CAIV&EVM

- CAIV PROGRAMS ARE EVALUATING EVM
- WORKING A MODEL TO RELATE CAIV & EVM
- PRESENTED AT 2-DAY SCEA/ISPA CONF
- PRESENTED DURING AR WEEK
- EELV AND SBIRS-LOW ARE GOING FFP

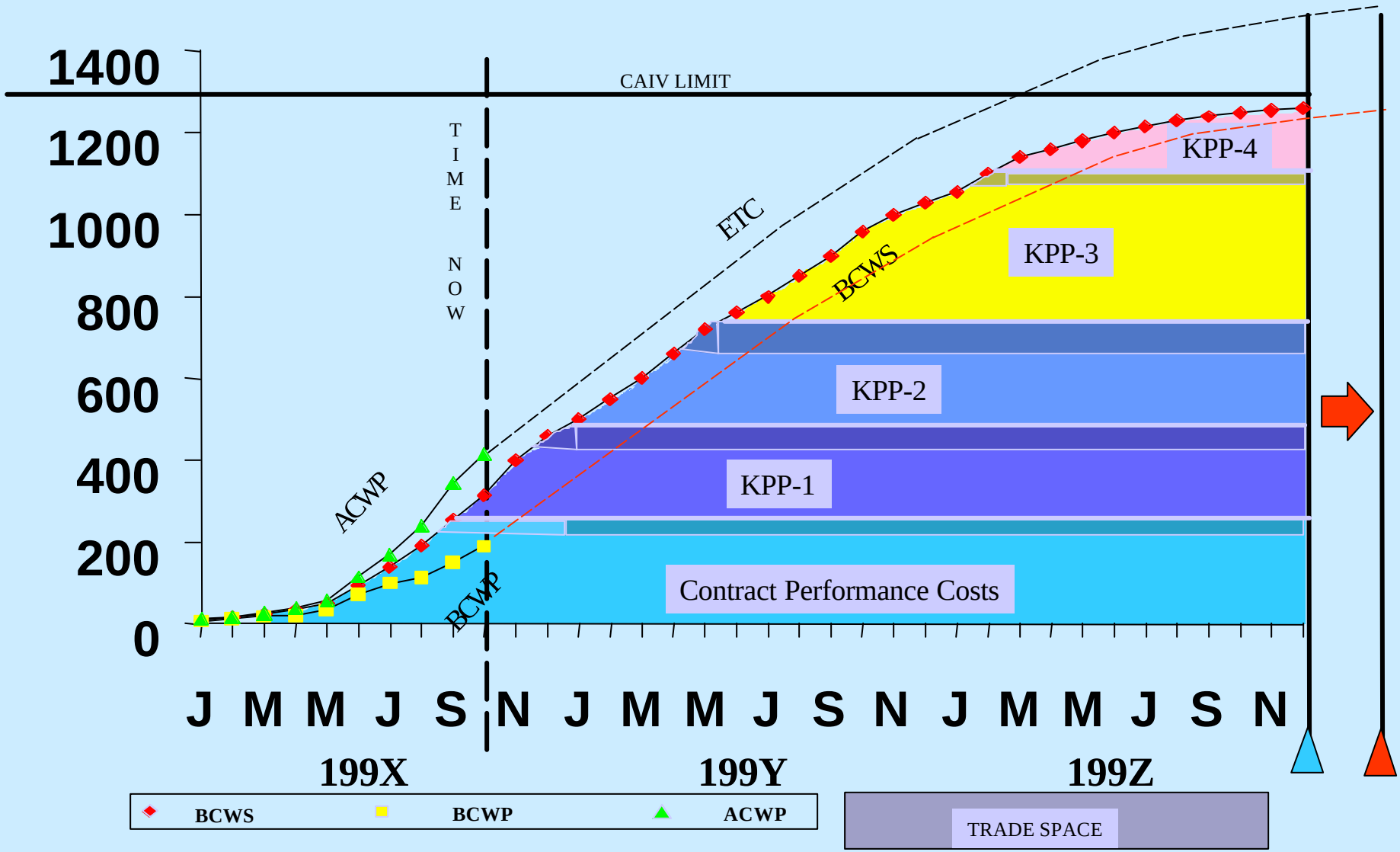
CAIV and EVM MODEL

A	Advanced Satellite Program	N/A	N/A	N/A	1,632,090	1,632,090
AA	Advanced Satellite	N/A	N/A	N/A	1,024,750	1,024,750
AAA	Spacecraft	N/A	N/A	N/A	344,730	344,730
AAAA	S/C Int., Assy., Test & C/O				30,900	30,900
		C-1	T-1	N/A	12,500	12,500
		C-2	T-4	N/A	18,400	18,400
AAAB	Structure				51,200	51,200
		C-3	T-2	KPP1	24,600	24,600
		C-4	T-2	N/A	21,000	21,000
		C-5	T-2	N/A	5,600	5,600
AAAC	TT&C				49,870	49,870
		C-6	T-3	KPP1	19,750	19,750
		C-7	T-3	KPP2	25,600	25,600
		C-8	T-5	KPP2	4,520	4,520
AAAD	EPDS				102,500	102,500
		C-9	T-6	KPP1	46,000	46,000
		C-10	T-6	KPP2	56,500	56,500
AAAE	Thermal Control				25,300	25,300
		C-11	T-7	KPP1	9,700	9,700
		C-12	T-7	KPP2	15,600	15,600
AAAF	Avionics				61,000	61,000
		C-13	T-8	KPP2	36,500	36,500
		C-14	T-9	KPP3	24,500	24,500
AAAG	Aux. Kick Motor				23,960	23,960
		C-15	T-10	KPP2	15,460	15,460
		C-16	T-10	KPP3	8,500	8,500



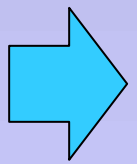
Total by KPP		
KPP	Budget	Estimate
Total	1,632,090	1,632,090
KPP1	100,050	100,050
KPP2	154,180	154,180
KPP3	33,000	33,000
KPP4	93,970	93,970
KPP5	140,740	140,740
Non-KPP	1,110,150	1,110,150

CAIV and EVM


1400
1200
1000
800
600
400
200
0
CAIV LIMIT
TIME NOW
ETC
BCWS
ACWP
BCWP
KPP-4
KPP-3
KPP-2
KPP-1
Contract Performance Costs
J M M J S N J M M J S N J M M J S N
199X
199Y
199Z
BCWS
BCWP
ACWP
TRADE SPACE

COST AS AN INDEPENDENT VARIABLE (CAIV)

- CAIV IS early *and persistent* use of trade space by the User/ Buyer/ Supplier partnership
- CAIV IS the traceable connection among acquisition processes, requirements definition, cost estimate, and budget prior to each *significant event*
- CAIV IS the establishment of and execution to aggressive but *achievable*, affordable LCC and **quantified** price requirements



- Valid EVM information can contribute to cost/schedule/tech trade-offs decisions.
- Evaluation and understanding of EVM information leads to current decisions and future cost estimations; POE's make use of EVM data from ongoing contracts.
- Analysis of cost variances provides understanding of current conditions and future cost growth potential.

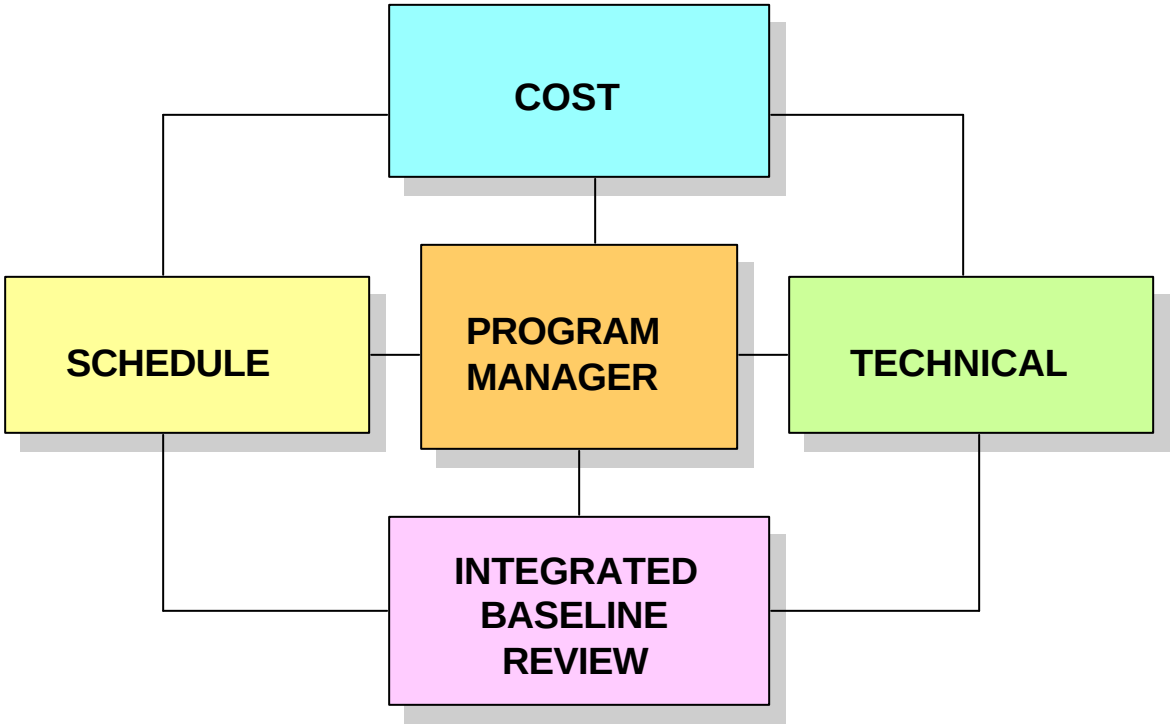
RECOMMENDATIONS

- **DFARS CLAUSE BECOMES FAR CLAUSE**
- **CPR IS THE “REPORT OF CHOICE”:**
  - **LIMIT WBS LEVELS TO 3 AND ABOVE**
  - **DELETE FORMAT 2 AND 4**
  - **LIMIT FORMAT 5 TO SCHEDULE ANALYSIS**
- **OTHERWISE...BUSINESS AS USUAL!!**

SUMMARY

DON’T GO BACK TO TWO MANAGEMENT SYSTEMS AGAIN!

INTEGRATED BASELINE REVIEW BEST PRACTICES



B-1B DEFENSIVE SYSTEM UPGRADE PROGRAM
BOEING NORTH AMERICAN, Inc., SEAL BEACH, CA

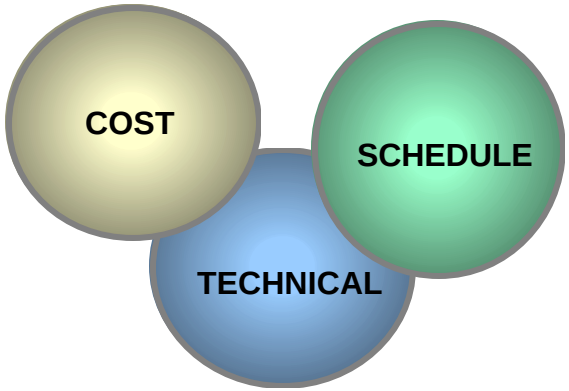
VIRGINIA F. HARRAH
COST PERFORMANCE ANALYST
ASC/FMCM, WPAFB, OH 656-5462

OVERVIEW

- EVMS CONCEPT
- IBR OBJECTIVES
- PROCESS EVOLUTION
- PRE-IBR ACTIVITIES
- IBR PROCESS
  - TRAINING
  - TEAM MEMBERS
  - NOTEBOOK REVIEW
  - TELECONS
  - FACILITY VISIT
- SUCCESS STORY

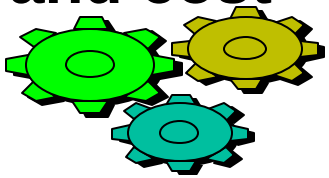
CONCEPT OF EARNED VALUE MANAGEMENT

Earned Value Management is a Tool that Allows both Government and Contractor Program Managers to have Visibility into Technical, Cost, and Schedule Progress on their Contracts. The Implementation of an Earned Value Management System is a *Recognized Function of Program Management.* It Ensures that Cost, Schedule and Technical Aspects of the Contract are Truly Integrated.

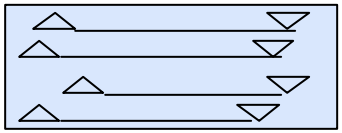


IBR OBJECTIVES

- **Ensure technical content of work packages and cost accounts (CAs) is consistent with the SOW**



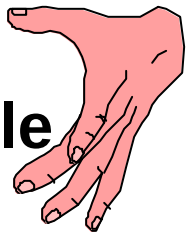
- **Ensure that there is a logical sequence of efforts that support the contract schedule**



- **Assess the validity of allocated cost account budgets**

- **Understand the earned value methods for measuring accomplishment**

Establish a "*Sense of Ownership*" within the government program office of the Cost/Schedule management process

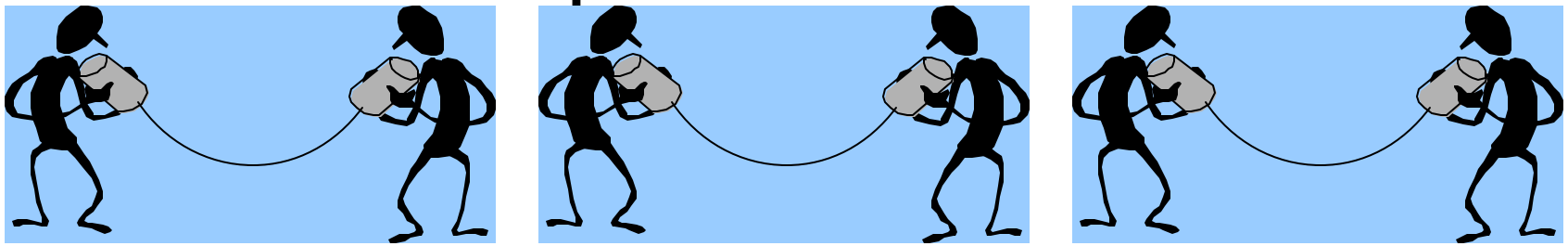


PROCESS EVOLUTION

- **Block E IBR conducted at contractor facility three months prior to Block F IBR**
  - **System Description and EVMS application reviewed**
  - **CAMs interviewed and processes reviewed**
  - **Block E IBR action items still in work prior to closeout**
  - **Some of same personnel involved in Block F**

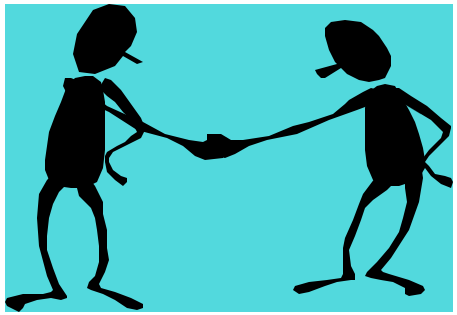
- **TDY schedules hard to coordinate with technical and management personnel**

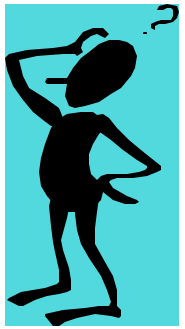
- **Less intrusive process desired**



PROCESS EVOLUTION (con't)

- **Brainstorming session resulted in SPO in-house review concept**
- **Obtained SPO management and ASC/FMCM approval**
- **Obtained enthusiastic buy-in from contractor**





PRE-IBR ACTIVITIES

- **Team Leader Meeting**
  - Planned the review
  - Documentation required
  - Tentative agenda
  - Tentative interview schedule
  - Team assignments
  - Established schedule for team training
- **Issued Contractor Notification Letter**
  - Dates of review
  - Documentation requirements
    - Prior to review
    - On arrival at plant
  - Requested Responsibility Assignment Matrix (Ram)

IBR PROCESS

- **Received contractor RAM**
  - **Selected cost accounts for review**
  - **Notified contractor**

- **Training session**
  - **Basic EVMS and IBR process training by ASC/FMCM**
  - **Contractor's EVMS overview**
    - **Organizational structure**
    - **Work Authorization documents**
    - **Program schedules**
    - **Control Account Plan**
    - **Performance Measurement System**
    - **Change processes**
    - **Management Reserve**
    - **Internal Cost Performance Report**
  - **CAM notebooks delivered**

BNA IBR TEAM MEMBERS

- Bill Lloyd — Team Chief, ASC/YDQ, DSUP Program Mgr
- Virginia Harrah — Deputy Team Chief, ASC/FMCM
- Charlotte Mathena — DSUP Financial Mgr., ASC/YDQ
- Gil Jernigan — Boeing B-1B CMUP PP&C Mgr.
- John Rush — Boeing B-1B Cost Management Lead
- Gene Satterfield — Boeing B-1B Block F Schedule Lead

Government Team

Pryor
Eviston
Anderson
Smith
Trilli
Doelling
Monzon
Gillespie
Padilla
Bridges
Wysong
Carter

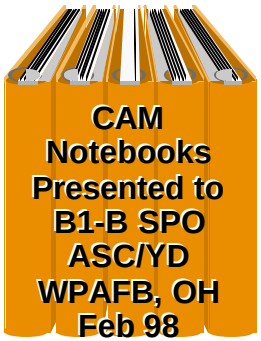
Contractor CAMS

Waller
Andrew
Eden-Logan
Stelmak
Smith
Pruett
D'Onofrio
Jernigan
Gulick
Vanden Brink
Nelson
Haller
Vanderslice
Bitten

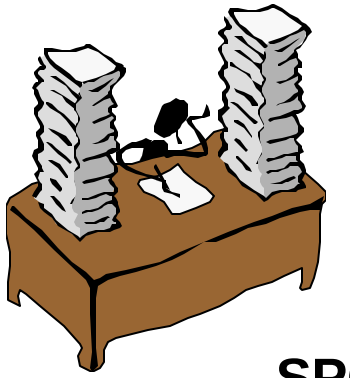
GOV'T REVIEW OF CAM NOTEBOOKS

- Attended notebook training session
- Set aside sufficient time for thorough review
- Stayed within review time frame
- Government preparation:
  - Familiarization with the system
  - Planned approach to take
  - Used questionnaire as guideline for review of data
- Developed questions for CAM telecon

GOV'T REVIEW OF CAM NOTEBOOKS (con't)

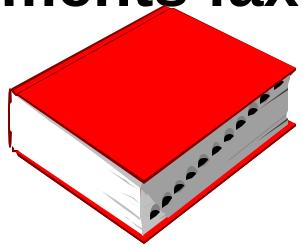


- **Notebook review details:**
  - **SPO technical staff reviewed CAM notebooks**
    - **Compared with proposal evaluation data**
    - **Assessed task descriptions and labor hours**
    - **Assessed performance measurement methodology**
    - **Tracked from work package schedules to contact schedule**
    - **Developed questions for CAM interview telecons**
  - **SPO Financial Manager, Contractor, and FMCM representative provided assistance as required**

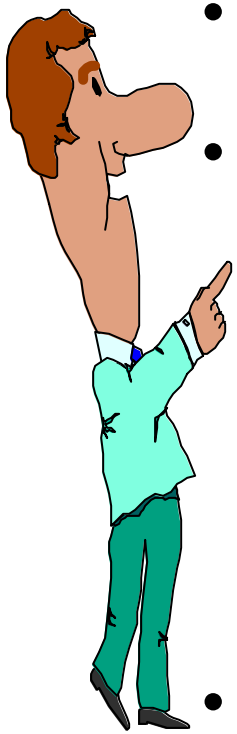


CAM TELECON

- **Telecons scheduled when convenient for both sides**
- **CAMs were prepared**
  - **Had documentation available**
  - **Understood contents of notebooks**
  - **Showed support for answers**
  - **Good Communication**
- **Additional document requirements faxed**
- **Agreed on areas of concern**
- **Documented discussions**

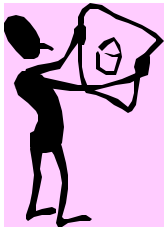


DISCUSSION FLOW FOR TELECON



- Introduced team members present for telecon
- Told the Cost Account Manager what they were trying to accomplish
  - Content of Work Authorization vs. scope of work
  - Scheduling
  - Resource allocation and time phasing
  - Earned Value method
  - Baseline management
- Started discussion by asking CAM to describe what they do and how they manage their scope of work
- Discussed questions developed during notebook review

DISCUSSION FLOW FOR TELECON (con't)

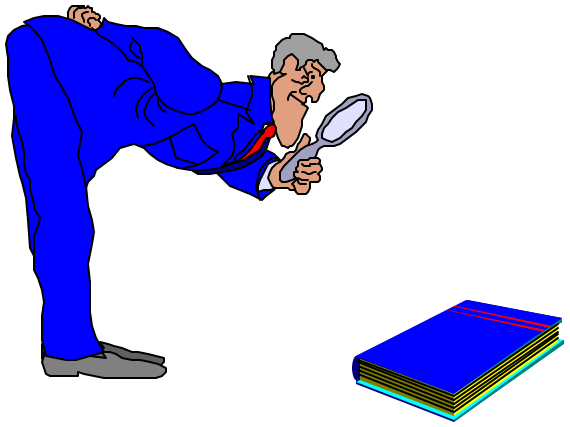


- **Discussions were "Show Me" type**
  - **Questions focused on particular part of notebook that needed clarification**
  - **CAM identified documentation he/she was talking about when answering questions**

- **Determined confidence in the following:**
  - **Scope of work was completely allocated**
  - **Work Authorization process was formally coordinated between program office and cost account managers**
  - **Scheduling was logical and consistent (master, intermediate, detailed)**
  - **Resource allocation, time phasing, and Earned Value methodology appropriate and adequate for assessing progress**

CONTRACTOR FACILITY VISIT

- **Program Manager, SPO Financial Manager, and FMCM representative visited contractor's facility to review in-house documentation**
  - **Contractor Book of Accounts**
  - **Management Reserve Log**
  - **Undistributed Budget Log**
  - **Change Process**
  - **ECP Process**
  - **CPR/CFSR reconciliation**

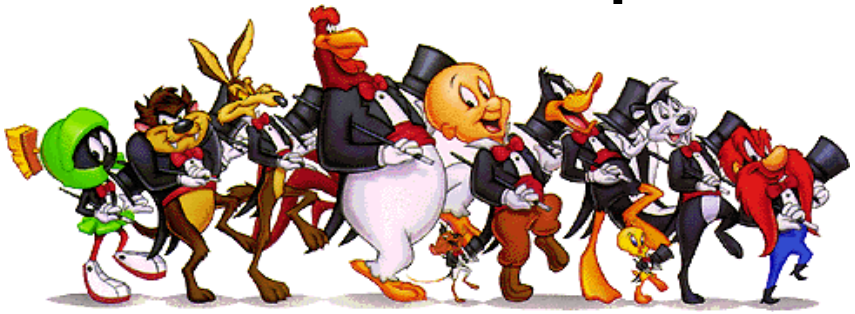


- **Program Manager presented outbriefing to Contractor**

BNA IBR SUCCESS STORY

- **SPO technical staff gained greater insight into PMB**
  - **More time for task comparisons with SOW**
  - **Time phasing of tasks and schedule trace closely reviewed**
  - **Better understanding of performance measurement process**
- **Taxpayer Cost Avoidance ~ $75K-$100K**

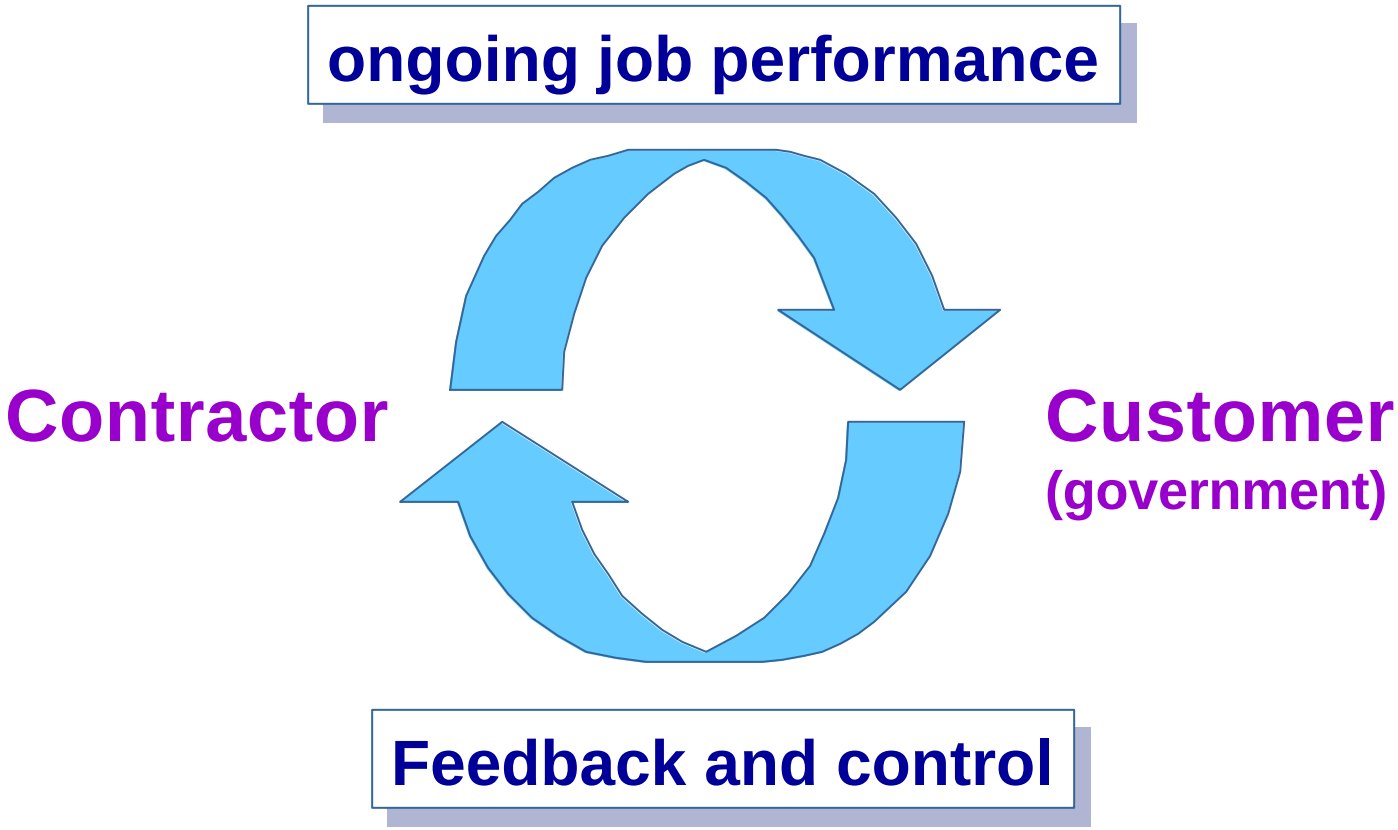
- **Reduced disruption at contractor facility**
- **Both government and contractor pleased with results**



Managing Programs with Cost Performance Reports

Eleanor Haupt
JPATS Program Office
Wright-Patterson AFB

Effective Project Control



The Cost Performance Report

- **Formal data item for major contracts**
  - **at present, not on firm fixed price contracts**
  - **DI-MGMT-81466**
    - **moved from financial series**
- **Purpose**
  - **management report**
  - **provides timely, reliable summary level data**
  - **assesses current and projected contract performance**

Primary Value

- Early and accurate identification of trends and problems
- Accurate picture of contract status
  - cost, schedule, and technical
- Basis for course correction
- Supports mutual goals
  - bring project in on schedule and cost

Legacy of CPR Reporting

- Old data by time it reached managers
  - CPR seen as history report only
  - good look back
- Burdensome, costly paperwork
  - Imposed all 5 formats
  - monthly report could generate hundreds of pages
- Limited feedback to contractor
- No integration to program schedule or risk or technical status

How can we manage programs using the CPR?

In order for the CPR to be used as a management tool….

We must tailor it to reflect the management structure, policy, and operating culture of the contractor.

Otherwise, it will be seen simply as an external report!

Reform Initiatives

- **Strive for minimal data**
  - **Tailor the level of reporting to match program risk at different WBS levels**
  - **eliminate either Format 1 (WBS) or Format 2 (functional)**
  - **Can eliminate other formats**
    - **Format 3, Baseline**
    - **Format 4, Manpower forecasts**
    - **Format 5, Variance Analysis**

Either is the only mandatory format

Reform Initiatives

- **Tailoring**
  - **CPR should reflect the contractor's management structure**
    - **variance analysis (Format 5)**
      - **example: Integrated Product Teams**
      - **should be written by person who has control of work and resources**
  - **Focus on significant variances**
    - **contractor determined**
    - **Top Ten, etc.**
    - **customer specified ($ or %)**
    - **should have mutual agreement up front, reviewed periodically**
      - **dialogue during source selection**

Reform Initiatives

- **Contractor format acceptable**
- **Electronic submission required**
  - **ANSI X12 data set**
- **Timing**
  - **flash data (early submittal of performance data before variance analysis)**

CPR Analysis within the SPO

- **Assign to technical managers within program offices**
- **Conduct monthly team variance meetings**
- **Work closely with DCMC team**
- **Share results of analysis with contractor**

Continuous Improvement

- **Attend contractor variance meetings**
- **Periodic review of CPR with contractor**
  - **Do we need to modify the report?**
  - **Are we getting only the data that we need?**
  - **Are our corrective plans working?**
  - **Are we using this as a tool to manage the program?**

Keys to Success

- **Don’t force contractor’s management structure into CPR**
  - **CPR should follow structure**
- **Periodic review of process**
- **Program managers and technical staff must support 100%**
- **Open communication and feedback**

Let’s work together to make this right

Summary

- **Measures of Successful Reform**
  - **CPR process used to make daily decisions about program execution**
    - **contractor and government**
  - **CPR not seen as burdensome report and**
  - **Programs are completed on time and within budget**

ERP

Enterprise Resource Planning

Performance Measurement Association

Joe Kusick

May 18, 1997

Agenda

- Welcome/Introductions
- A&D Compliance
- What Is ERP?
  - Overview Of ERP - Enterprise Resource Planning
- “Traditional Practices” vs. “Integrated Enterprise View”
  - Emerging Issues
- Issue Resolution Process
  - How do we best interface with each other, with our customers to address emerging issues?
- Wrap-Up
- Question/Answer Forum
  - Are there areas that need to be more fully addressed?
  - How do we share this information with other Government customers?

What Is ERP?

- Enterprise Resource Planning (ERP)
  - Major business processes combined into an integrated software solution
    - Focus on entire value chain

- Financial Accounting
- Controlling
- Fixed Asset Management
- Project System
- Workflow
- Human Resources
- Production Planning
- Materials Management
- Sales & Distribution
- Plant Maintenance
- Quality Management

Enterprise Resource Planning

- Full integrated processes and data
- Real time processing
- Drives significant percentage of Companies business
- Includes:
  - Finance
  - MRP II
  - Supply Management
  - Quality
  - Scheduling
  - Sales and Distribution
  - Tooling
  - Program Management

Why ERP?

Radically changed business environment

Dynamic marketplace

New markets

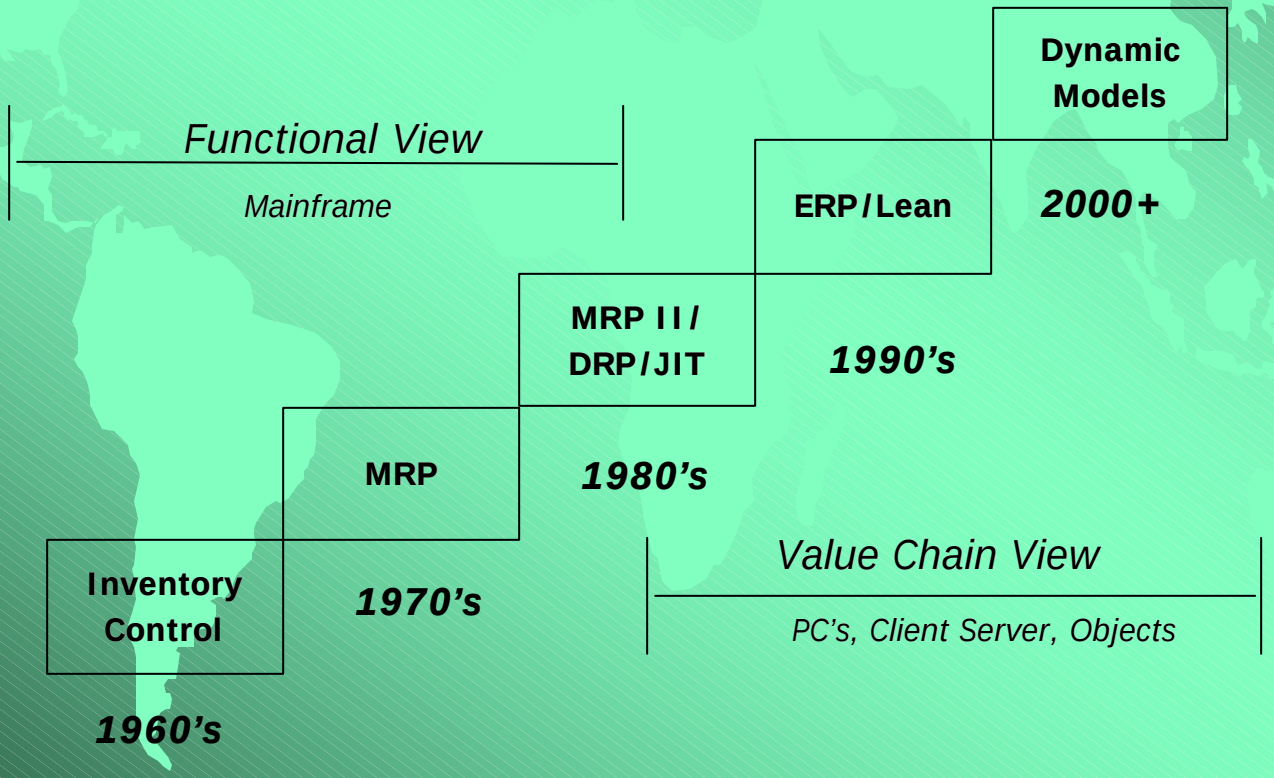
Increased competition

Higher customer expectations

- Pressure to lower costs across the value chain
- Pressure to significantly reduce lead-times
- Greater focus on inventory reduction/management
- Trend to expand product/service offerings
- Drive for improved product/service quality
- Need to efficiently manage business performance across geographically dispersed global marketplace

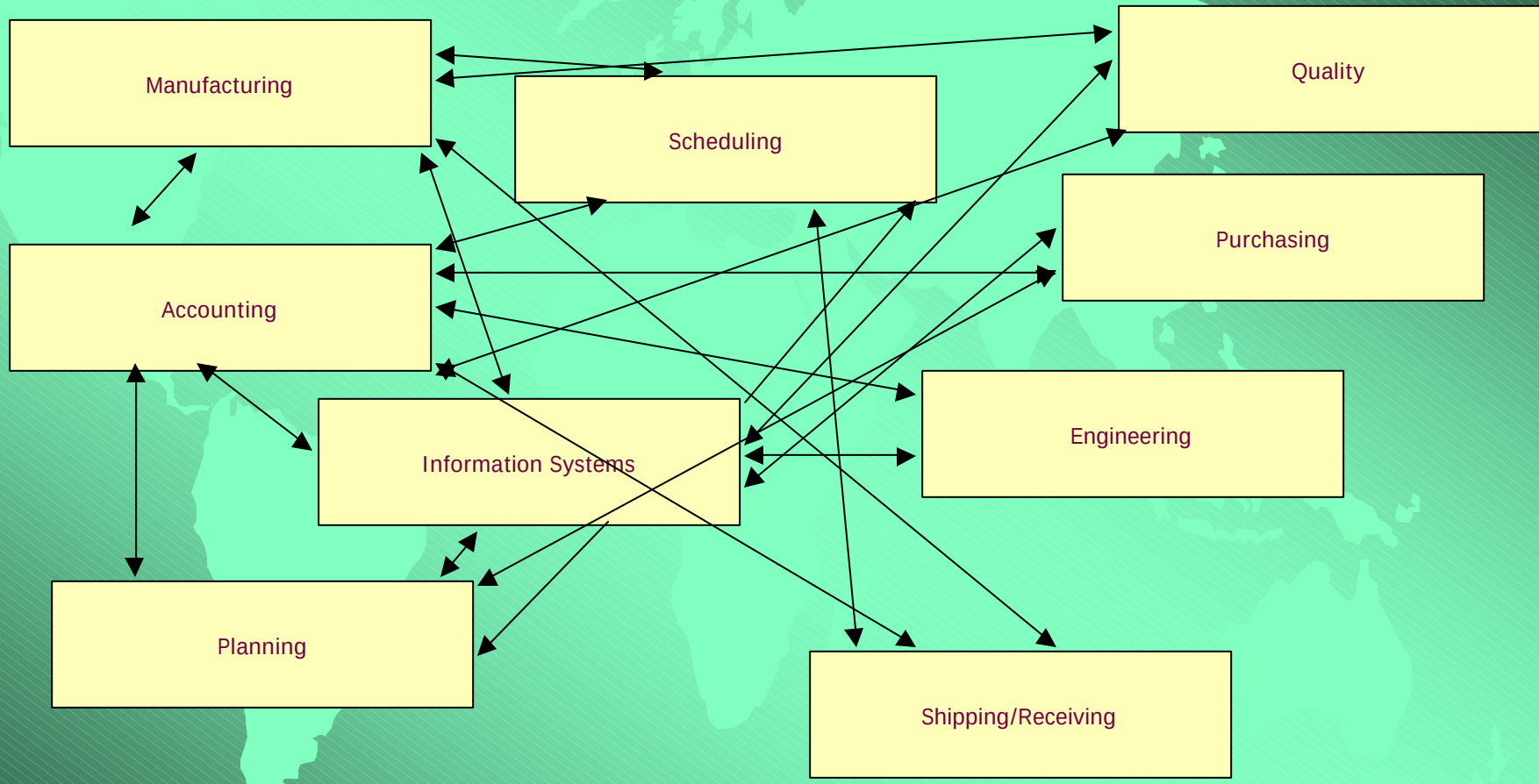
Being more responsive to ***all*** internal & external customers

Evolution of Business Planning & Execution Systems



*From Business Process Revision Enables Enterprise Resource Planning - September 24, 1997

Legacy Systems

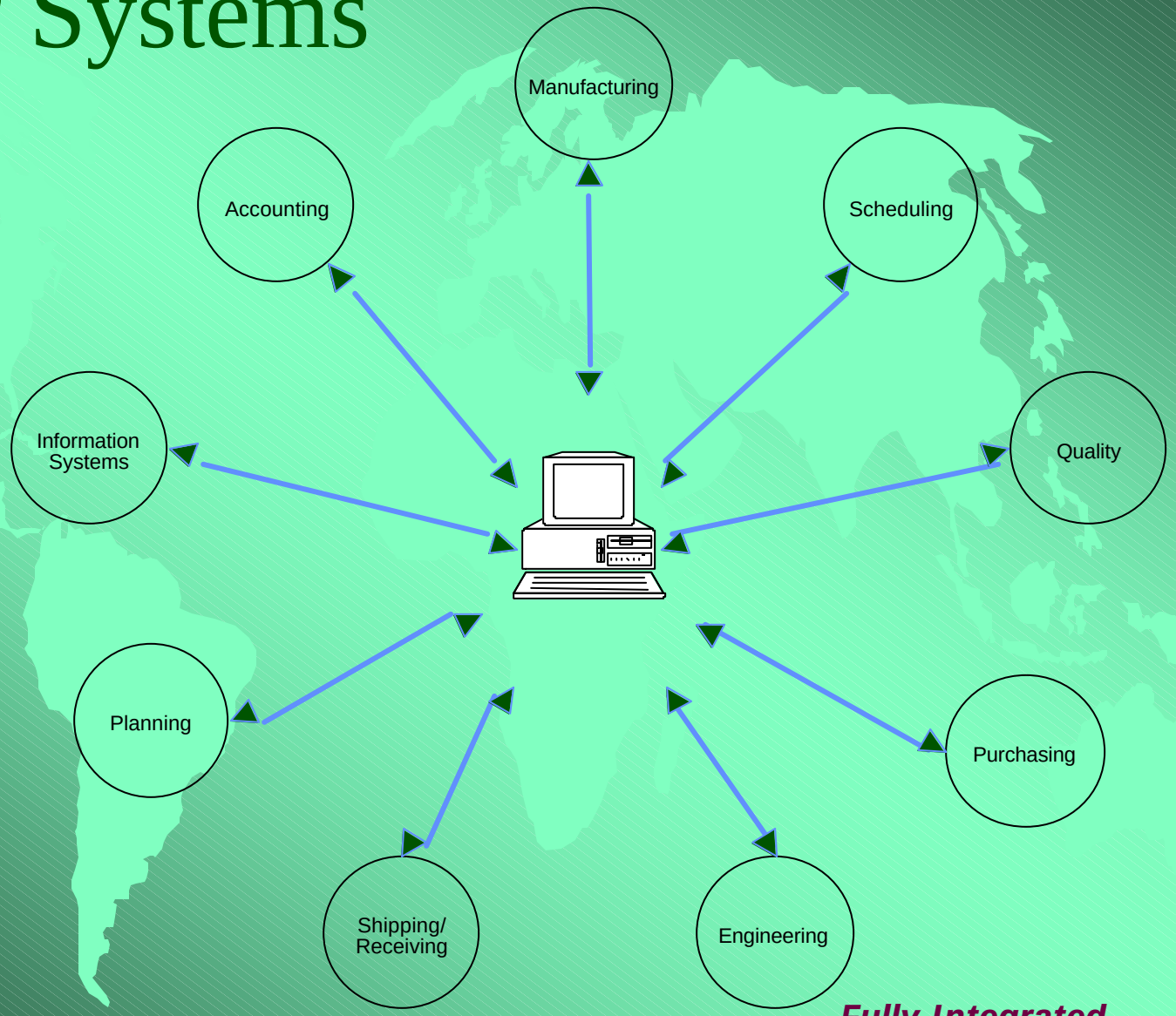


Complicated - Redundant - Fragmented

Traditional Legacy Systems

- Proprietary mainframe and minicomputer architecture
  - Supplier hardware and software dependent
  - Little control over technological direction
- Lengthy, complex, costly development, implementation and reengineering process
  - Difficult to document
  - Not integrated
  - Old technology
  - Customer and/or “Home Grown”
- Limited flexibility and adaptability to changes in business environments
- Multiple systems and sources of information for same functions and data
  - Interface vs. Integration
- Limited
  - Data availability/accessibility
  - Data continuity
  - Data timeliness
- Scalability difficult or impossible
  - Plant/site specific
- Not process oriented
  - Functionally based
- Ineffective support of EC/EDI

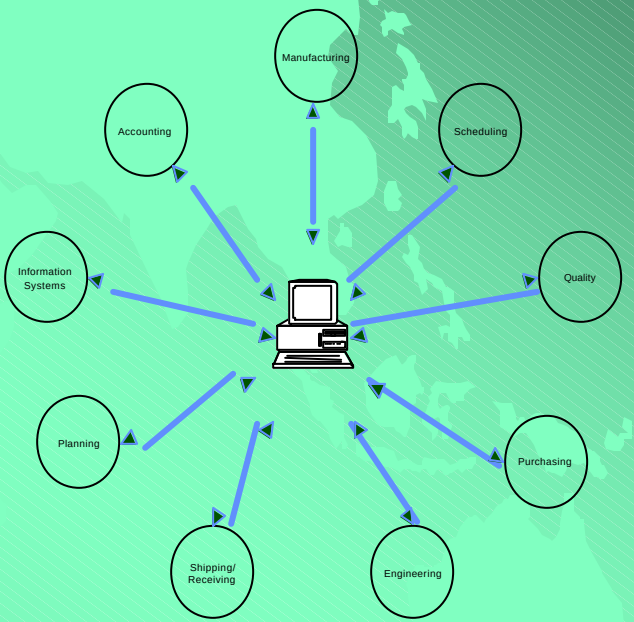
ERP Systems



Fully Integrated - Complementary Applications

ERP System Attributes

- Automatic Data Transfer
  - Supplier, Customer, Internal User
- “Common” Look and Feel
  - Separate But Complimentary Functions
- Fully Integrated Supply Chain
  - Communication Between Functions (Process)



ERP System Architecture

- Fourth Generation Language Development
- Open System Design
  - Facilitating integration of complimentary application systems
- Multi-Tiered Client/Server Architecture
  - Databases
    - Data management functions
  - Application Servers
    - Application processing logic
  - Presentation Servers

ERP Implementation

- Properly Implemented ERP Systems Will Help Contractors To More Effectively Manage Key Business Drivers
  - Cost
  - Quality
  - Leadtime/Delivery
- However, Effective Implementations May Affect a Companies Current Processes
  - Accounting
  - Estimating
  - Purchasing
  - Production Management
  - Etc.

ERP Implementations - Key To Success

- Understand
  - Steps, Assumptions, Strengths, Weaknesses
- Simplify
  - Rearrange, Eliminate, Combine, Increase
- Automate
  - Leverage Opportunities For “Real” Improvements Via Automation

Successful Companies Strive To Understand And Simplify Their Processes

*From “The USA Principle: The Key to ERP Implementation Success, Karl M. Kapp, APICS, June 1997

ERP & Acquisition Reform

- Focus On Streamlining And Standardizing Processes
  - Commercial/Best Practice Approach
  - Potential SPI Type Initiatives
    - Identify & Implement Alternative Approaches And Opportunities For Streamlining Government Requirements
- These Changes May Affect Many Of The “Systems” That The Government Approves

ERP & Acquisition Reform (cont.)

- Team With Government Customer Through "Management Council" Type Groups To…
  - Consider Alternative Oversight Approaches
    - Comprehensively Focus On Process Changes And Benefits
      - Individual Process Vs. Overall Process
  - Develop High Level Guidance To Ensure Consistent Approach and Application

“Traditional Practices” vs. “Integrated Enterprise View”

- Emerging Issues

Emerging Issues

- Systems Approvals
  - Consistent Approach & Application
- Process Reengineering & Organizational Restructuring Implications
  - Changes To Accounting Practices
    - Actual Vs. Standard Cost
  - Disclosure Statement Changes
  - Rate Package Changes

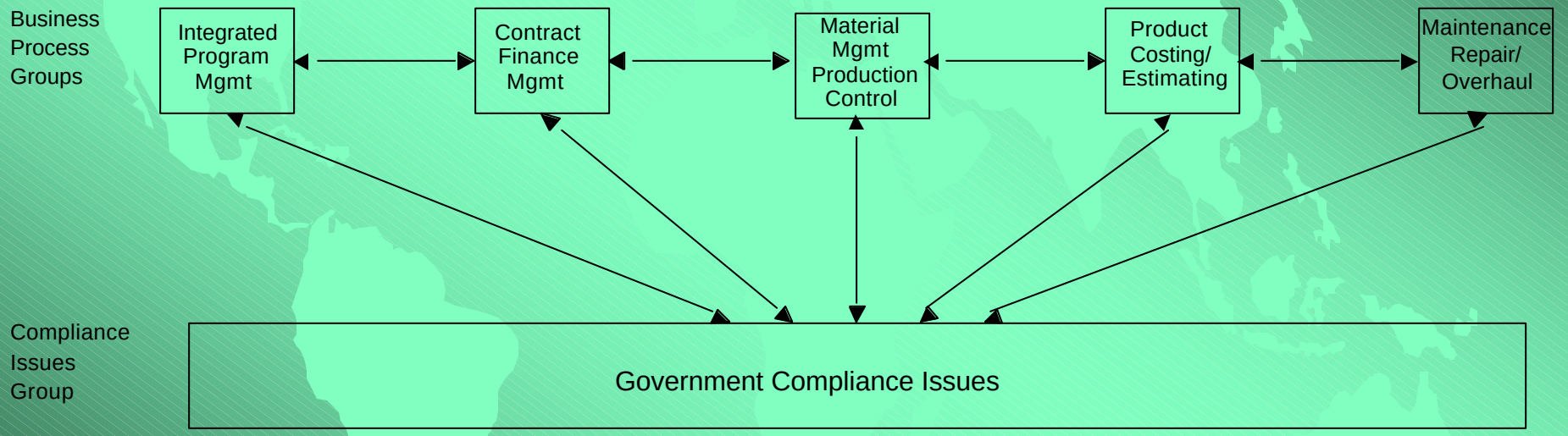
Additional Emerging Issues

- Are there other issues?
  - What is the topic/problem/opportunity?
- Are there actions that Industry needs to take?
  - Would there be a benefit to a cross-organizational/cross-industry approach for resolution?

Issue Resolution Process

- How do we best interface with each other, with our Customers - to address emerging issues?

Linkages


Business Process Groups
Integrated Program Mgmt
Contract Finance Mgmt
Material Mgmt Production Control
Product Costing/ Estimating
Maintenance Repair/ Overhaul
Compliance Issues Group
Government Compliance Issues

ERP Focus Areas

INTEGRATED PROGRAM MANAGEMENT	CONTRACT FINANCE MANAGEMENT	MATERIAL MGMT PRODUCTION CONTROL	PRODUCT COSTING/ ESTIMATING	MAINTENANCE REPAIR/ OVERHAUL	COMPLIANCE
•Work Breakdown Structures & Maintenance •Schedule Network Development & Maintenance •Progress Analysis/ Measures (including EVMS) •Project Cost/Revenue Planning •Integrated Enterprise Planning	•Billing Issues -Limitation of Funds/ Cost/Liability -Unallowable Costs -Resource Related Billing -Pricing Conditions For Cost Reimbursable & Fixed Price Contracts •Contract/Sales Order Structuring •Cost Allocations -Direct/Indirect Costs -Final Indirect Rate Adjustments -Overtime Premium & Travel Cost Limits -CAS 414/417 •Delivery Process	•Configuration Management •Government Property Control •Inventory Management •MRP/BoM •Shop Floor Planning/ Control •Vendor Planning/Control •Cross Contract Planning Pegging •Plant Maintenance	•Proposal/Quotation Preparation •Project Simulation •Target Costing/CAIV •Parametric Estimating	•Service Management •Resource Related Billing •Warranty Considerations •As Maintained Configurations •Interface w/ Material Management/Production Control Regarding Government Property Issues	•Quick Disposition of Issues •Follow Through of Issues •Coordinate Specification Preparation & Review •Development Planning •Testing & Feedback Regarding A&D Solutions

Focus Areas

Specification Preparation & Review

- Providing “high level” requirements to a group of software developers with limited A&D knowledge is not an effective way to initiate design and coding functions
- Specification preparation and review activities need to include
  - Description of Specific A&D Process
    - Areas/Modules Touched
  - Scenarios and Activity Chains
  - Customer and Stakeholder Input

Focus Areas

Development Planning

- Successful Development of Complex System Software Requires
  - Focus on the “Front End” Requirements and Concept Phase
  - Enable Process by Integrated IPT Teams
- Apply a Disciplined Model for Development

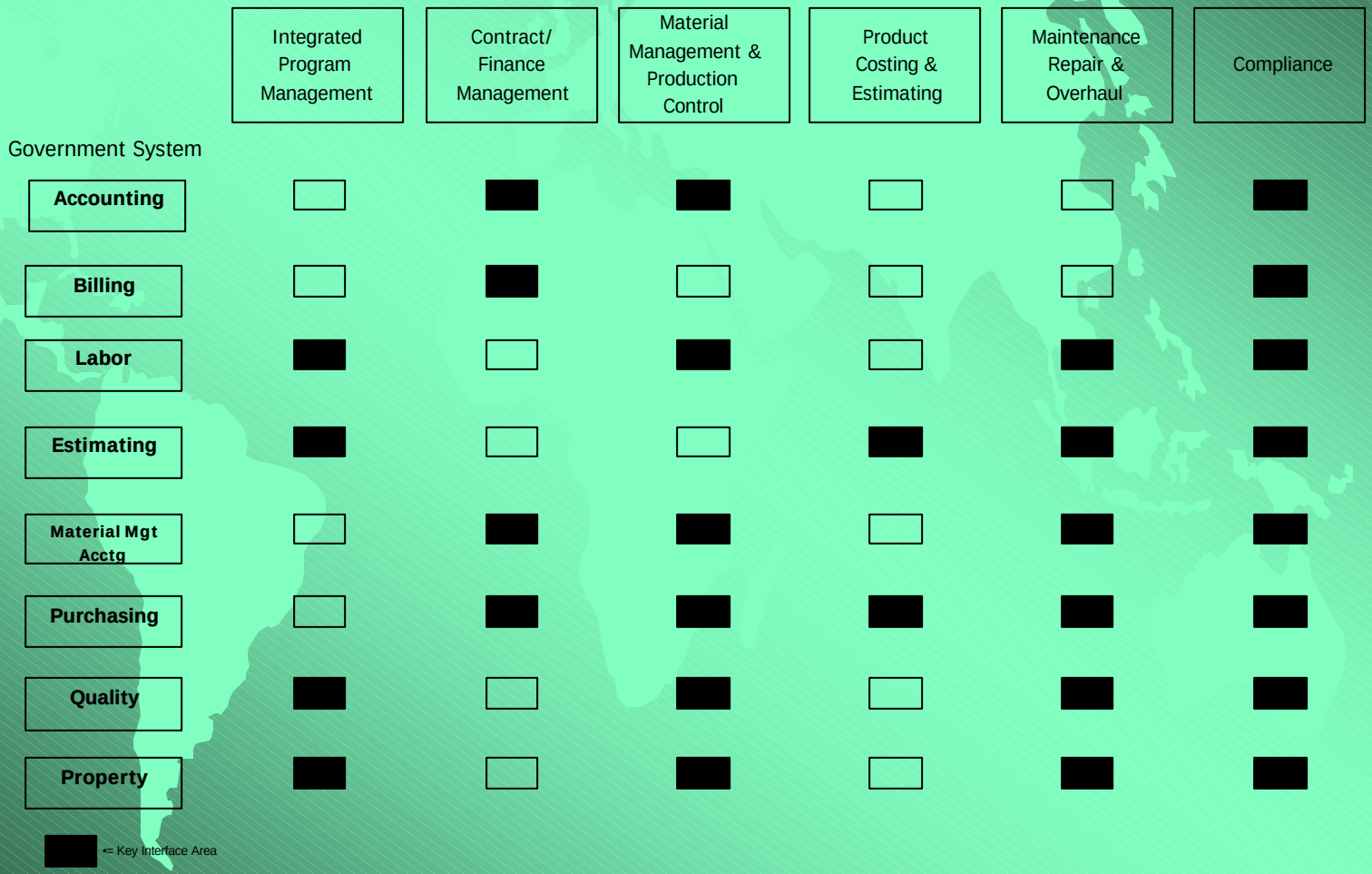
Utmost attention to the front end of development activities is crucial to development success...Industry must focus on the front end of the process

Focus Areas

Testing & Feedback Regarding Solution

- Basis for Testing and Key Decision Rationale
- Strategy and Criteria, Cases, Scenarios
- User and Customer Input
  - Engage Customers and Stakeholders early in the process

ERP Systems Coverage



Wrap-Up

- Provided an Overview of ERP
- Sensitized Audience to Potential Issues
- Summary
  - We need to be aware and be part of the implementation - ERP is establishing new Industry Benchmarks
    - Cycle time
    - Cost efficiency
    - Quality

Questions/Answers

- Are there areas that need to be more fully addressed?
- How do we best share this information with other Government customers?

Performance Based Management at Raytheon Aircraft Company

Joe Kusick
Raytheon Aircraft Company
EVMS Manager
May 18, 1998

Raytheon Aircraft Policy for Performance Based Management

- EVMS is a “Tool” for Performance Based Management
  - Commercial/Development Programs
    - EVMS is applied based on Program Risk
      - Technical / Schedule / Cost
    - EVMS requirements are tailored
    - Programs to use EVMS designated by CEO
  - Government Programs
    - EVMS applied as contractually agreed to
  - Surveillance & Training
    - Conducted quarterly
    - Monthly report provided to CEO of Company addressing Major Programs use of EVMS
    - Joint / & Self surveillance

EVMS Endorsement by Top Management at Raytheon Aircraft Co.

Inter-Office Communication

Raytheon Aircraft

Beech
Hawker

Date November 14, 1995

From James E. Gray

To Distribution cc:

Subject Raytheon Aircraft Company
EVMS System Description

The Raytheon Aircraft Company Earned Value Management System Description sets the policy and provides guidance for programs which have been designated to be managed using earned value.

For high risk, high dollar government programs where EVMS is a requirement, the EVMS system description will be followed as written. Any deviations to the EVMS system description must be reviewed and approved by Raytheon Aircraft Company's management team.

Direction is provided for tailoring EVMS implementation on company funded efforts and medium to low risk government programs where EVMS is required. The attached check list provides this direction and should be incorporated in your program plan.

The Raytheon Aircraft Company Chief Financial Officer with the advice of the EVMS Manager will interpret policy and provide guidance for EVMS implementation.

Your cooperation, support, and use of EVMS as a management tool is required to enable Raytheon Aircraft Company to compete in a global environment where we are being challenged in our technical prowess, and our ability to meet schedule and cost commitments.

James E. Gray
Vice President and
Chief Financial Officer

JEG:jm

Attachment

APPROVED:

Roy Norris
President

Art Wegner
Chairman and Chief Executive Officer

Tailoring Criteria

Earned Value Measurement Check List (EVMCL)					
LEGEND:		X = Mandatory requirement, prechecked			
		A = Mandatory requirement, format or approach optional (attach forms)			
		O = Optional, indicate applicability with an 'X'			
		☐ = At least one is mandatory, choice of more than one is optional			
		N/A = Not applicable due to a more stringent requirement			
PROGRAM					DATE:
ITEM			HIGH RISK HIGH DOLLAR DEVELOPMENTAL PROGRAMS GOVERNMENT PROGRAMS	MEDIUM TO HIGH RISK DEVELOPMENTAL PROGRAMS MAY BE GOVERNMENT OR COMPANY FUNDED	LOW RISK LOW DOLLAR DEVELOPMENTAL OR STABLE COMPANY FUNDED PROGRAMS PRODUCTION PROGRAMS	COMMENTS, ATTACHMENT NUMBER OR REFERENCE
I.	ORGANIZATION					
	1.	Program work definition will be specified by the following:				
		a. Development of a Work Breakdown Structure (WBS) that is reconcilable to the Statement of Work	X	X	A	
		b. Issuance of a WBS Dictionary	X	X	O	
		c. Issuance of a WBS Index	X	X	O	
		d. Issuance of a WBS Pictorial Tree	O	O	O	
	2.	Program organizational definition will be specified by the following:				
		a. The designation of Integrated Product Teams (IPT's) and the assignment of IPT Leaders (IPTLs)	X	X	A	
		b. Issuance of a program organization chart to the lowest IPT level	A	A	O	
		c. The definition of staffing requirements (by department) by the IPTL's	A	A	O	
		d. The consolidation of IPT staffing requirements into a Program Staffing Plan (by department)	A	A	O	
	3.	The integration of work definition and organizational definition will be accomplished through:				
		a. The identification of cost accounts and associated Control Account Managers (CAMs)	X	X	X	
		b. Issuance of the program organization chart to the CAM level	O	O	O	
		c. Issuance of a Responsibility Assignment Matrix (RAM)	X	X	A	
		d. Issuance of a dollarized RAM indicating total burdened dollars for each cost account	X	X	A	

Tailoring Criteria cont'd

Earned Value Measurement Check List (EVMCL)					
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I.	ORGANIZATION (continued)				
4.	Integration of planning, budgeting, scheduling, work authorization, and cost accumulation will exist at the following levels:				
a.	Contract / Program level	X	X	X	
b.	Integrated Product Team (IPT)	X	X	X	
c.	Cost Account level	X	X	X	
II.	SCHEDULING				
1.	Schedules will be developed using the following system(s)				
a.	AS	☐	☐	☐	
b.	EVMS - CPR system	☐	☐	☐	
c.	Other(s) (list)			☐	
	_____				
2.	The following schedules will be prepared: definition will be accomplished through:				
a.	Tier I Master Schedule	X	X	A	
b.	Tier II Intermediate Schedules	X	O	O	
c.	Cost Account Schedules depicting planning of work packages	X	X	A	
d.	Supplementary Schedules (List)	O	O	O	
	_____				
	_____				
	_____				
3.	Vertical traceability between the various levels of schedules will be accomplished by one (or more) of the following:				
a.	Using distinct nomenclature and date for milestones	☐	☐	☐	
b.	Assigning unique milestones numbers	☐	☐	☐	
c.	Activity / milestone coding in automated systems	☐	☐	☐	
d.	Other (define in detail by attachment)	☐	☐	☐	

Tailoring Criteria cont'd

Earned Value Measurement Check List (EVMCL)					
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II.	SCHEDULING (CONTINUED)					
	4.	Vertical traceability between various WBS elements within the schedules will be accomplished by one (or more) of the following:				
		a. Using a 'logical' WBS numbering scheme	☐	☐	☐	
		b. Maintaining a schedule index	☐	☐	☐	
		c. Other (define in detail by attachment)	☐	☐	☐	
	5.	Horizontal traceability to ensure work is planned in a logical sequence considering the interdependencies among tasks will be accomplished by one (or more) of the following:				
		a. Network based schedules	☐	☐	☐	
		b. Bar chart schedules indicating logical relationships	☐	☐	☐	
		c. Activity and/or milestone interface logs	☐	☐	☐	
		d. Other (define in detail by attachment)	☐	☐	☐	
	6.	The schedule symbology utilized will be:				
		a. Standard symbology	X	X	X	
III.	Contract Baseline & Revisions					
	1.	Summary Control Account authorizations will be used to authorize scope, schedule, and budget to the IPT Leaders	X	A	A	
	2.	Control Account Authorizations will be used to authorize scope, schedule, and budget to the Control Account Managers (CAMs)	X	A	A	

Tailoring Criteria cont'd

Earned Value Measurement Check List (EVMCL)				
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III. CONTRACT BASELINE & REVISIONS (continued)				
3. The following logs will be used:				
a. Contract Budget Logs (CBL)	X	A	A	
b. Management Reserve (MR)	X	A	A	
c. Undistributed Budget (UB)	X	A	O	
IV. COST ACCOUNT PLANNING, AUTHORIZATION & REVISIONS				
1. Control Accounts will be established which are identified to a single element of the WBS and a single organizational element	X	X	O	
2. Control Accounts will be established at an appropriate level for management and analysis where responsibility for technical, schedule, and cost performance is assigned.	N/A	N/A	X	
3. Control Accounts will be subdivided into tasks and each task is identified as either: a discrete work package, level of effort, apportioned effort, or planning package	X	X	O	
V. DETERMINING STATUS & ENTERING BCWP				
1. Earned value techniques will be used for performance measurement	X	X	A	
2. Milestone weights and percent complete for earned value will be based upon:				
a. Direct labor dollars or direct dollars for material or other direct costs	☐	☐	☐	
b. Total burdened dollars	☐	☐	☐	
c. Other (describe) _____	☐	☐	☐	

Tailoring criteria cont'd

Earned Value Measurement Check List (EVMCL)					
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VI.	VARIANCE ANALYSIS				
1.	Analysis and reporting will always be accomplished for the total program. In addition, significant variances will be reported and analyzed at the:				
a.	Contract Reporting Level	X	X	O	
b.	Integrated Product Team Level / Design Build Team	X	X	O	
c.	Control Account Level	X	O	O	
d.	Other (list)	O	O	O	
	_____				
2.	Thresholds are established for variance analysis and are documented on the attached reference. These thresholds will be determined for:				
a.	Current period (if applicable)	X	X	O	
b.	Cumulative to date	X	X	X	
	For the following categories:				
a.	Customer reporting levels	X	X	X	
b.	Integrated Product Team levels	O	O	O	
c.	Control Account levels	X	O	O	
d.	Other (list)	O	O	O	
	_____				
3.	For labor elements of cost, rate and efficiency variance will be determined and analyzed	X	A	O	
4	For high value material, price and usage vcariance will be determined and analyzed monthly	X ☐	A ☐	O ☐	
		☐	☐	☐	
		☐	☐	☐	
		☐	☐	☐	
		☐	☐	☐	

Tailoring Criteria cont'd

Earned Value Measurement Check List (EVMCL)					
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VII.	ESTIMATES AT COMPLETION (EAC)				
1.	The lowest level at which the EAC will be examined monthly for accuracy and updated as warranted is at the:				
a.	Contract / Program level	N/A	☐	☐	
b.	Contract reporting level	N/A	☐	☐	
c.	IPT	N/A	☐	☐	
d.	Control Account level	X	☐	☐	
e.	Work package level	O	☐	☐	
2.	The lowest level at which a comprehensive EAC will be performed at least annually is the:				
a.	Contract / Program level	N/A	N/A	A	
b.	Contract reporting level	N/A	X	O	
c.	IPT	N/A	O	O	
d.	Control Account level	X	O	O	
e.	Work package level				
VIII.	MATERIAL AND OTHER DIRECT COSTS				
1.	Develop Bill of Material based on current design definition	X	X	X	
2.	Identify high value and low value materials	A	A	A	
IX.	SUBCONTRACTS				
1.	All subcontracts will be identified:				
a.	As part of the WBS Dictionary	☐	☐	☐	
b.	As listed on a separate document (reference document) and cross reference to the WBS	☐	☐	☐	
2.	Identify subcontracts as either Type One or Two	X	X	A	

Tailoring Criteria cont'd

Earned Value Measurement Check List (EVMCL)

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IX. SUBCONTRACTS (continued)				
3. Develop flowdown requirements for Type One and / or Two subcontracts	X	X	X	
X. REPORTING				
1. The following software system will be used for processing performance measurement data:				
a. EVMS - CPR	☐	☐	☐	
b. Other (list) _____	N / A	N / A	☐	
2. The program requires the following cost / schedule reports (list each report and its due date or include on attachment)				
a. _____				
b. _____				
c. _____				
d. _____				
e. _____				
f. _____				
g. _____				

Lessons Learned

① You must first understand the existing Financial & Operational business processes and tools available in a company.

② Tailor the EVMS management process with existing systems capabilities considered.

③ Corporate culture is slow to change.

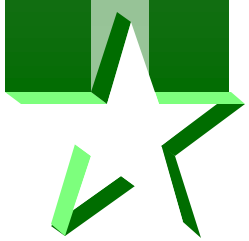
- Must have support from the CEO
- EVMS cannot be successful if viewed as a “Finance Report”

Lessons Learned cont'd

④ You must train, reinforce and make it a part of doing business.

⑤ Proper EVMS use and implementation starts prior to program or contract - start, not after.

- Assess contractors capabilities
- Set the statement of work
- Definitive
- Plan the baseline



Recommendations

- For FFP Contracting
  - Establish Performance Measurement milestones at a HIGH level. Preferably deliverables in the contract.
    - Assess performance to those deliverables.
  - Establish EVMS requirement based on Risk and not necessarily contract type.
  - Improve pre-award process
    - Access the contractor prior to award decision.
    - Plan the baseline prior to full authority to proceed.
    - Use the right contract vehicle for the product you are contracting for. (Do not use a FFP Contract for contracts that are not high risk.)
  - Poor contractor evaluations prior to contract are not fixed by additional legislation operating reports.
    - Insight versus Oversight

Do EVMS & FFP Belong Together ?

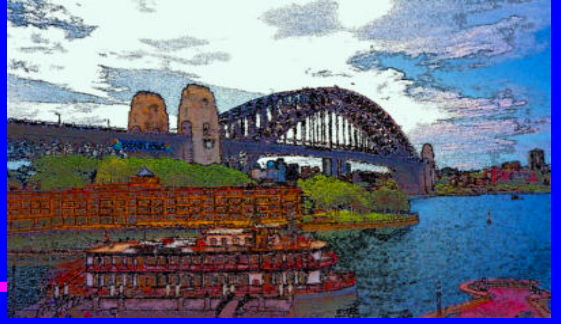
Australia's Experience with EVMS on FFP contracts & some lessons learned.

Presented by: Jim Muir, Director of Acquisition Review, Australian Department of Defence at the PMA's 14th Annual Conference, May 17-20. 1998. Clearwater Beach Florida.

Our Environment

- Large country with a small population
- Low Defence Budget:
  - 1996/97 Total approx AUS$10 Bn or 2% GDP
  - Capital component approx. AUS$2.3 Bn with 70% spent in Australia
  - Service strength 57000 Civilian 19000
- Small industrial base - further consolidating
- Mostly Fixed Price Contracts - 70% spent on projects with EVMS

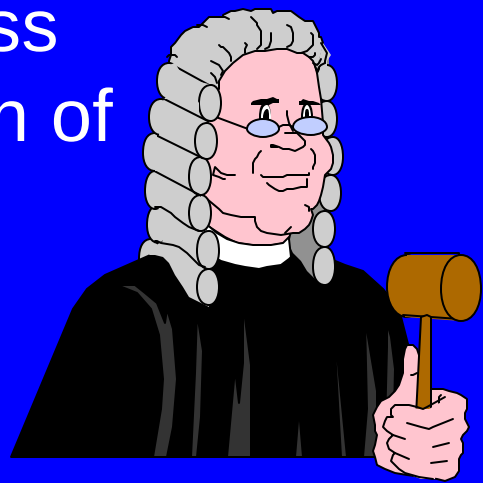
Australian EVM History



- CSCSC applied to 2 projects in mid 1980s
- JPAC Report 243 (1986) requires adoption of CSCS
- Defence accepts recommendation & applies first on Submarine & ANZAC “mega”projects
- Formation of dedicated focal point (DPMS) in 1989
- Criteria published & first company validated 1990
- US/Australia mutual recognition late 92, trilateral acceptance of validations Feb 95
- ACSIG progressively developed, finalised 1993
- IPMC formed mid 93

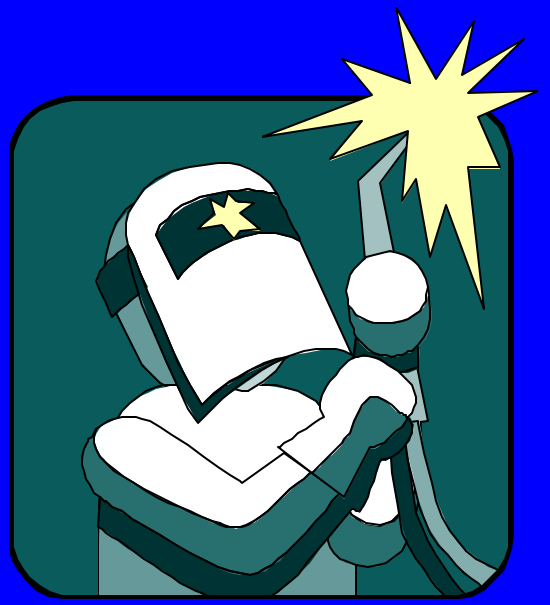
JPAC 243 RECOMMENDATIONS

- *Recommendation 30* CSCS be introduced to assist contractors upgrade their management information systems
- *Recommendation 31* CSCS become the basis for cost and schedule reporting by contractors for all major projects
- *Recommendation 32* Progress payments be geared to submission of satisfactory CSCS Report

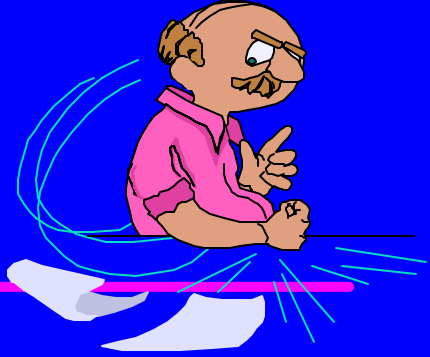


Initial Industry Response

- You can’t be serious
- We don’t operate that way
- Industry wont tolerate this - we wont do business with Defence
- It’s un-Australian!

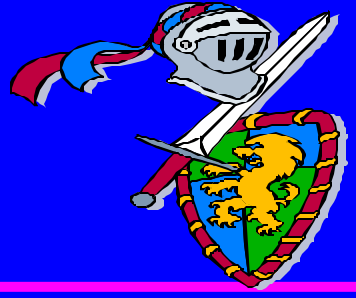


Problems / objections



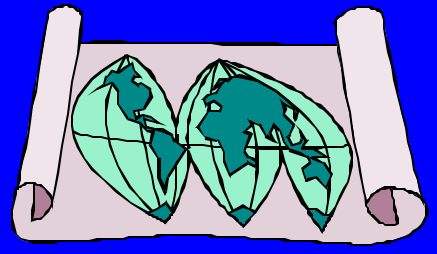
- Objections to EVM with Fixed Price contracts
- Objections to reporting actual costs
- Objections to reporting overheads
- Confusion as some within Defence too ready to accept industry viewpoint
- Failure of Defence to make it quite clear what the rules were

Myths



- FFP has no cost risk to the customer
- EVMS is too costly - an unnecessary overhead
- EVMS is not required for production
- We can’t divulge our costs/margin/profit/rates

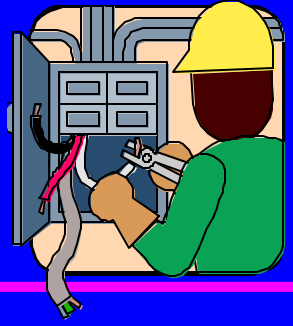
EVMS Principles



EVMS

- is a PM system not Funds Management
- is a world's best PM practice
- system enhancement encouraged
- provides the contractor and client with accurate status of the contract
- enables performance data summarisation to any level for effective decision making

Contractors' View

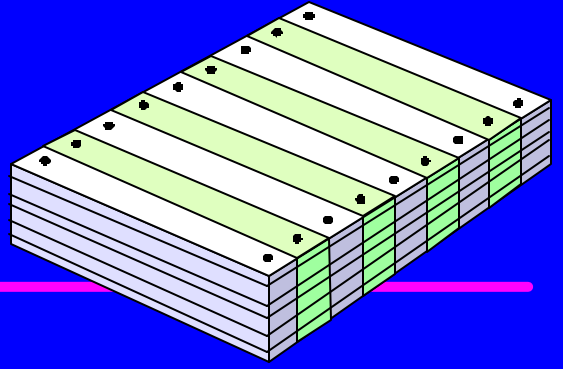


- Need an integrated system to manage effectively
- EVMS is best project management practice
- Benefits from one set of business practices
- Cost overrun on FFP will impact profit
- Early visibility of problems essential for the company to remain in business
- Many aspects already applied, so incremental cost of EVMS low

Customer View

- Wants timely and accurate status visibility
- Early indications of cost/schedule overrun assist proactive management
- Cost/schedule problems a leading indicator of quality problems
- Risk sharing may be more cost effective than risk avoidance

Report Types



- CMACS - Collins class Submarines
- CDAMS - Anzac Frigates
- Price Based CPR - F111 AUP
- CPR in Hours - with actuals and EAC
- Cost Based CPR - our standard requirement

Early Review Issues

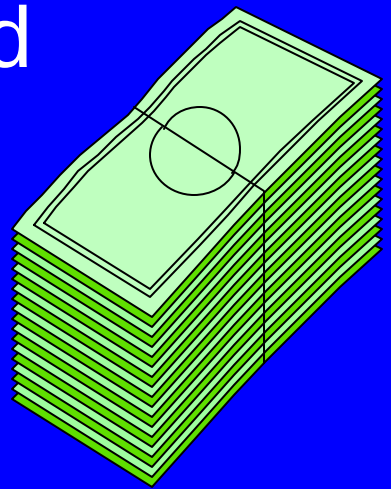
- Who sees what information (rates, profit, logs etc)
- Interview preparation - data availability
- Overhead management
  - single project companies
  - corporate overheads (G&A)
- Rebaselining - who owns the CBB?

Mature Industry Position

- Initial resistance to providing cost based EVM data has evaporated
- Acceptance of DoD's requirement for CPR type reports
- Focus is on how to make EVMS outputs useful to both industry and the customer, including: hours based reports for production, weekly statusing, timely reports, forward looking emphasis

Progress Payment based on EV

- link to JPAC recommendations
- problems with defining and pricing high level milestones
- EV as the “best estimate” of progress
- companies desire to eliminate duplication between EVMS and invoicing systems



EV Payment Models

- 100% earned value
- mix of EV and milestones

Mixed Model

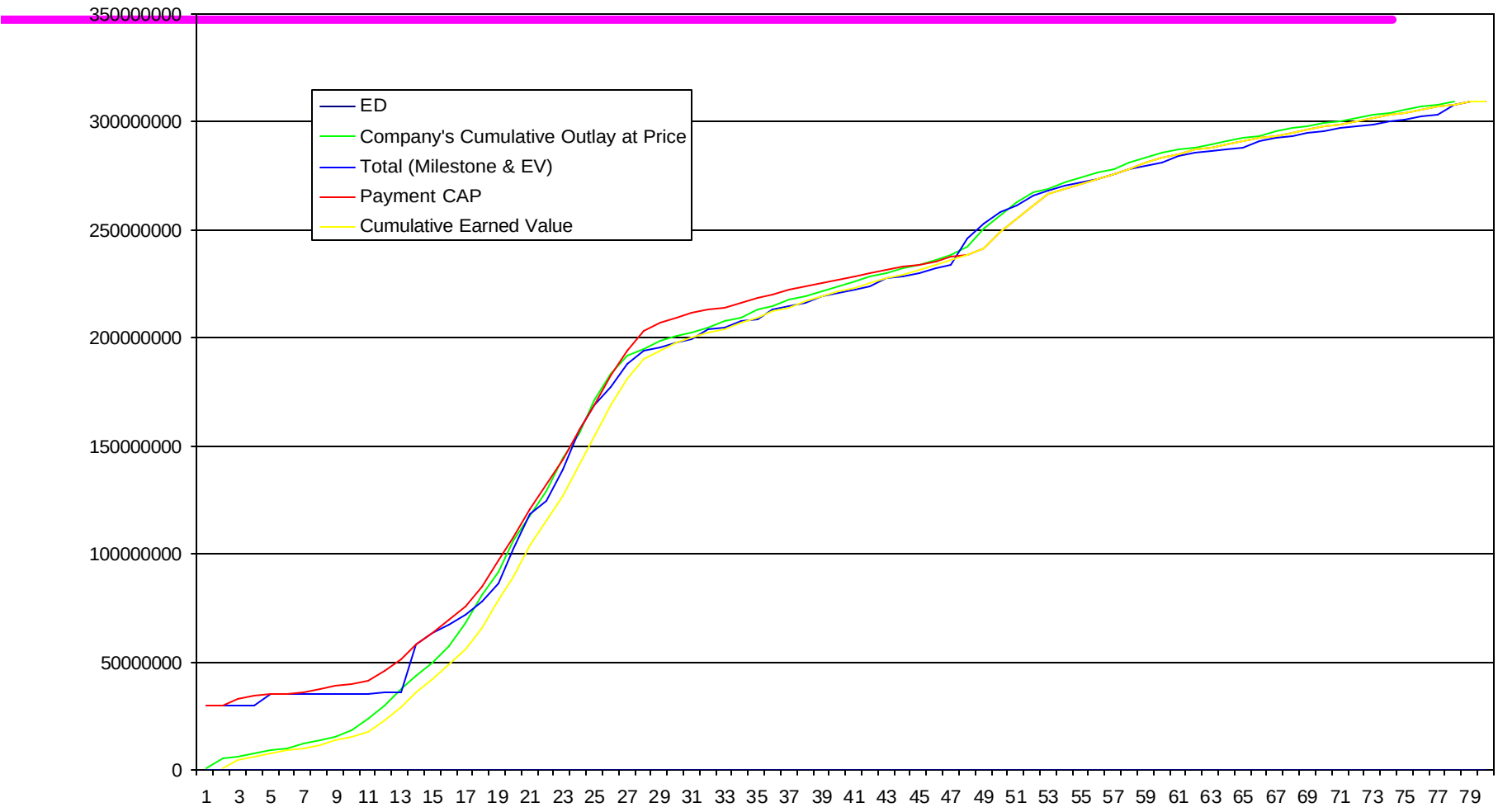
Company Assumptions:	
EVP % of Month Completed =	0.8

Contract Provisions:	
EV Percentage =	0.6
CSCS Accreditation at ED =	12
Contract Price =	309,642,202
Price Cap based on ED =	48

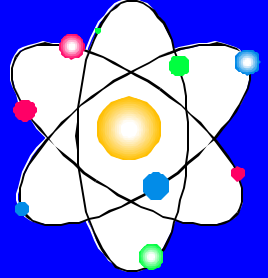
Interest rates:	
Company Overdraft Rate =	
Commonwealth's Bond Rate =	

A*	B	C*	D	E	F	G	H*	I	J	K	L*
								Sum of Milestone Payments (except Initial) as a Percentage) =	100.00%	Total effect on interest over contract period =	
				Company Projection		Payment Claims					
ED	Company's Monthly Outlay at Price	Company's Cumulative Outlay at Price	Advance Payments to Sub-Contractors & Recoveries	Monthly Earned Value	Cumulative Earned Value	Monthly EV Claim	Cumulative EV Claim	Milestone	Milestone Payments as a Percentage	Milestone Payment Value	Total (Milestone & EV)
0	473,751	473,751						Mobilisation		30,000,000	30,000,000
1	4,312,175	4,785,926		379,001	379,001				0.00%		30,000,000
2	1,296,724	6,082,650		3,544,490	3,923,491				0.00%		30,000,000
3	1,308,807	7,391,457		1,899,814	5,823,305				0.00%		30,000,000
4	1,330,224	8,721,681		1,306,390	7,129,696			SRR	4.50%	4,223,560	34,223,560
5	1,273,018	9,994,699		1,325,941	8,455,636			IBR	0.00%		34,223,560
6	1,899,331	11,894,030	10,000,000	1,284,459	9,740,095				0.00%		34,223,560
7	1,654,537	13,548,567		1,774,068	11,514,164				0.00%		34,223,560
8	1,721,028	15,269,595	-1,000,000	1,703,496	13,217,660				0.00%		34,223,560
9	2,783,687	18,053,282	-1,000,000	1,707,730	14,925,389			DAC & Design Report	0.00%		34,223,560
10	5,299,238	23,352,520	-1,000,000	2,571,155	17,496,545				0.00%		34,223,560
11	6,687,422	30,039,942	-1,000,000	4,796,128	22,292,672			System PDR	2.00%	1,877,138	36,100,697
12	7,378,816	37,418,758	-1,000,000	6,409,785	28,702,458			C2S2 Accreditation	0.00%		36,100,697
13	5,788,499	43,207,257	-1,000,000	7,240,537	35,942,995	21,565,797	21,565,797		0.00%		57,666,494
14	6,089,395	49,296,652	-1,000,000	6,106,562	42,049,557	3,663,937	25,229,734	NMF1 & Riverina Construction Complete	2.00%	1,877,138	63,207,569
15	8,022,077	57,318,729	-1,000,000	6,029,216	48,078,773	3,617,529	28,847,264		0.00%		66,825,099
16	10,234,901	67,553,630	-1,000,000	7,635,541	55,714,314	4,581,324	33,428,588		0.00%		71,406,423
17	13,027,265	80,580,895	-1,000,000	9,792,336	65,506,650	5,875,402	39,303,990		0.00%		77,281,825
18	11,009,176	91,590,071		12,468,792	77,975,442	7,481,275	46,785,265	FITS Complete	1.50%	1,407,853	86,170,953
19	14,742,655	106,332,726		11,412,794	89,388,236	6,847,676	53,632,941	System DDR (Fixed Network Functionality)	10.00%	9,385,688	102,404,318
20	10,872,623	117,205,349		13,995,959	103,384,195	8,397,576	62,030,517	Works at four Sites Complete	7.50%	7,039,266	117,841,159
21	11,971,333	129,176,682		11,646,629	115,030,824	6,987,978	69,018,495		0.00%		124,829,137
22	15,100,466	144,277,148		11,751,591	126,782,415	7,050,955	76,069,449	Riverina & NMF1 installation (Basic System Concept Design Complete)	7.50%	7,039,266	138,919,358
23	11,790,453	156,067,601		14,474,639	141,257,055	8,684,784	84,754,233	System DDR (Core)	10.00%	9,385,688	156,989,829
24	15,108,081	171,175,682		12,452,456	153,709,510	7,471,473	92,225,706	Darwin Node Installation Complete	4.00%	3,754,275	168,215,578
25	11,847,274	183,022,956		14,444,555	168,154,066	8,666,733	100,892,439		0.00%		176,882,311
26	8,741,610	191,764,566		12,499,435	180,653,501	7,499,661	108,392,101	Remaining Node Installation Complete	3.50%	3,284,991	187,666,963
27	2,810,882	194,575,448		9,362,743	190,016,244	5,617,646	114,009,746		0.00%		193,284,609
28	3,525,666	198,101,114		3,997,028	194,013,272	2,398,217	116,407,963		0.00%		195,682,825
29	2,437,736	200,538,850		3,382,709	197,395,981	2,029,626	118,437,588		0.00%		197,712,451
30	1,771,745	202,310,595		2,655,322	200,051,303	1,593,193	120,030,782	Software Build 1 DDR Complete	0.50%	469,284	199,774,929
31	2,384,137	204,694,732		1,904,943	201,956,246	1,142,966	121,173,748	Final System PDR	2.50%	2,346,422	203,264,316
32	2,575,867	207,270,599		2,261,659	204,217,905	1,356,995	122,530,743		0.00%		204,621,312
33	2,461,451	209,732,050		2,537,521	206,755,426	1,522,513	124,053,255	System DDR (Intermediate)	1.50%	1,407,853	207,551,677
34	2,950,181	212,682,231		2,484,334	209,239,760	1,490,601	125,543,856		0.00%		209,042,278
35	2,177,760	214,859,991		2,852,435	212,092,195	1,711,461	127,255,317	Software Build 1 Complete	2.50%	2,346,422	213,100,161
36	2,631,979	217,491,970		2,332,244	214,424,439	1,399,347	128,654,663		0.00%		214,499,507
37	2,007,589	219,499,559		2,541,135	216,965,574	1,524,681	130,179,345		0.00%		216,024,189
38	1,973,162	221,472,721		2,132,467	219,098,041	1,279,480	131,458,825	System TRR (Core)	2.50%	2,346,422	219,650,091
39	1,944,517	223,417,238		1,980,047	221,078,089	1,188,028	132,646,853		0.00%		220,838,119
40	2,405,522	225,822,760		1,950,246	223,028,335	1,170,148	133,817,001		0.00%		222,008,267
41	1,929,546	227,752,306		2,313,321	225,341,656	1,387,993	135,204,993		0.00%		223,396,259
42	2,376,960	230,129,266		2,024,741	227,366,397	1,214,845	136,419,838	Transition to RAAF Operations Complete	3.00%	2,815,706	227,426,811
43	1,901,015	232,030,281		2,287,477	229,653,874	1,372,486	137,792,324		0.00%		228,799,297
44	1,901,110	233,931,391		1,996,204	231,650,078	1,197,722	138,990,047		0.00%		229,997,019
45	2,375,618	236,307,009		1,901,091	233,551,169	1,140,655	140,130,701	Land Mobiles DDR	1.00%	938,569	232,076,243
46	1,896,658	238,203,667		2,280,716	235,831,885	1,368,430	141,499,131		0.00%		233,444,673
47	3,993,797	242,197,464		1,992,450	237,824,335	1,195,470	142,694,601	Core Acceptance	12.00%	11,262,826	245,902,968
48	8,436,433	250,633,897		3,574,369	241,398,705	2,144,622	144,839,223	System DDR (Final)	5.00%	4,692,844	252,740,434

EV Model Chart

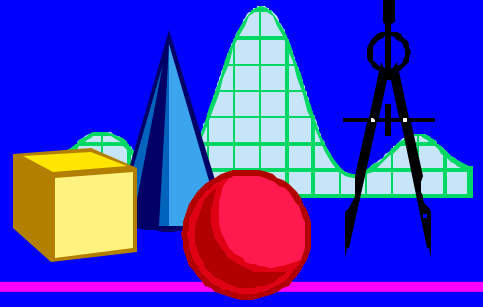


EV Payment Complexities



- comparing bids - time cost of money
- mobilisation payments
- lag between incurring cost and receiving payment
- material inventory
- picking low hanging fruit
- customer leverage vs. neutral cash flow
- companies new to EVMS - when can EV payment start

Preferred Model

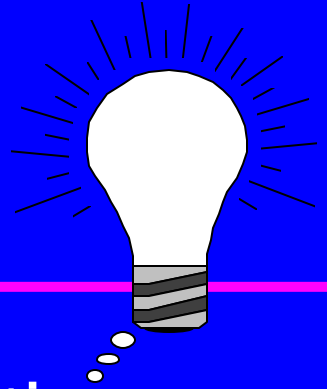


- Mixed milestone / EVP used for all contracts with EVMS
- Majority of the price (50-90%) to EVP
- Rest on achievement of milestones
- Split varies according to project value, risk, complexity, duration

Verifying EV Based Claims

- Review CPR - complete, correct
- Alignment with schedule, narrative
- Sample check CA & WP data
- Recommend payment or query data

Lessons Learned



- Clear leadership and direction needed
- Industry concerns must be heard
- Trust can be built and new norms established - Partnership is key
- EV payment can work
- EVP complexities need to be appreciated
- EVP assists in integrating EVM to core business

Planning, Budgeting, and Acquisition Under GPRA

David Muzio
Office of Federal Procurement Policy
202-395-6805

Largest Investor in Capital Assets?

- Federal stock estimated at $1.3 trillion
- 1996 outlays were $73 billion
- Capital asset programs must be well managed and provide the highest possible return on taxpayers dollars
- Decision affects not only the amount of dollars invested but also quality and quantity of government services

Legislation

- Budget Enforcement Act of 1990
- Government Performance and Results Act of 1993
- FASA
- Clinger-Cohen

Budget Enforcement Act of 1990

- OMB and CBO Agreement on Deficit for Fiscal Year
- All changes in appropriations must be deficit neutral

Government Performance and Results Act of 1993

- Strategic Plans and Objectives
  - Approved by the President and Congress
- Annual Performance Plans
- Acquisition performance measures and results part of plans
  - Benchmark performance measures for procurement system
  - Achievement of large acquisition goals

Performance Based Acquisition Management

Federal Acquisition Streamlining Act

Title V

Subtitle A - Armed Services
Subtitle B - Civilian Agencies

- Agency head shall approve or define the cost, performance, and schedule goals for:

  A - major defense acquisition programs

  B - major acquisitions

- Comptroller/CEO evaluates the cost goals

- Annual assessment of major and nonmajor acquisition program achievement of, on average 90 percent of goals

- A - SECDEF B - Administrator OFPP

Programs Not Within Goals

- Programs not achieving, on average, 90 percent of cost, schedule, and performance goals shall be reviewed by the agency head to:
  - Determine if continuing need for program
  - Identify suitable actions to be taken, including termination

FASA and FARA Workforce Development

- DDM, OMB, and OFPP establish policies and procedures to designate acquisition positions and manage employees (including accession, education, training, and career development)
- Contracting and program management
- Qualification requirements for civilian agencies comparable to DAWIA
- Funding identified in budget

Incentives (cont)

- Provide for consideration, in personnel evaluations and promotion decisions of the extent to which performance contributes to achieving the cost, schedule, and performance goals

Clinger - Cohen Act of 1996

- GSA -GSBCA - FIRMR eliminated from IT acquisition process
- Director of 0MB responsible for policy and approval of IT projects
- Chief information officers established
- Reduce risk
  - Modules

Purpose of Initiative

- To ensure that agencies improve the initial capital planning process for large acquisitions to develop realistic cost, schedule, and performance goals that are tied directly to agency strategic mission goals within available budget resources

- Agencies manage acquisitions to achieve goals to maintain budget discipline

Planning, Budgeting, and Acquisition of Capital Assets

OMB Circular No. A-11, Part 3

and

Capital Programming Guide

CAPITAL PROGRAMMING GUIDE

Version 1.0

July 1997

Purpose Of Guide

- Provide basic reference on principles and "best practice" techniques for **Planning, Budgeting, Procurement, and Management** of capital assets

- Integrates administration and statutory asset management initiatives
  - GPRA - Clinger - Cohen - FASA

Acquisition Plan and Justification

- Major acquisitions - those requiring special management attention because of their importance to the agency mission; high development, operating, or maintenance costs; high risk; high return; or their significant role in the administration of agency programs, finances, property, or other resources

Planning Phase

- Step 1 - Strategic and program performance linkage
  - Strategic planning
    - Capital assets should be planned for, acquired, and managed in light of their ability to contribute to accomplishing program outputs and outcomes in the strategic plan
    - Annual performance plan should demonstrate incremental progress of the asset in meeting strategic plan

Planning Phase

- Step 2 - Baseline assessment and identifying the performance gap
  - Establish an integrated product team
    - Qualified program manager and staff
  - Review existing capital assets, leases, and service contracts as a portfolio
    - Analysis of capability of existing capital assets to bridge the performance gap between existing and planned results
    - Use value management techniques

Planning Phase

- Step 3 - Functional requirements
  - Define the gap in terms of performance requirements to be achieved, not in equipment or software terms
  - Internal agency users and external customers should participate
  - “Specification Creep” is a major danger
    - Emphasis should be placed on core requirements not on future potential needs or “nice” to have

Unified Guidance

- Coordinate the collection of agency information for OMB reports to Congress
  - FASA Title V
  - Clinger - Cohen
  - Ensure acquisition plan supports mission, long-term goals and objectives, and annual performance plans required by GPRA

Planning Phase

- Step 4 - Alternatives to capital assets
  - Answering the three pesky questions
    - Need to be performed by the Federal Government
    - Other government or private source available
    - Support re-engineered work processes
  - Consider other options
    - regulation, user fee, human capital, grants
  - Frequent use of benefit-cost or cost effectiveness analysis

Planning Phase

- Step 5 - Choosing the best capital asset
  - Asset Availability
    - Can the market provide capital assets that partially or fully meet program requirement? How much of the need can be fulfilled without the need for developing new technologies or incurring other significant risk?
    - Market research strategy
    - Comparative demonstrations may be necessary if several alternatives offer same benefits and costs

Planning Phase

- Selecting the best alternative: benefit-cost analysis
  - Are the alternatives affordable within budget limits? If the full requirement is not affordable, can it be divided into separate modules that are affordable?
  - Initial acquisition cost and other life cycle costs of the various alternatives should be compared
  - Alternatives not affordable within potential budget availability should be dropped from consideration

Planning Phase

- Benefit-cost analysis
  - Identify assumptions and constraints
  - Identify and qualify benefits and costs
  - Evaluate alternatives using net percent value
  - Perform risk and sensitivity analysis
- Develop an acquisition strategy
- Allow adequate time to evaluate alternatives

Planning Phase

- Plans for proposed capital asset once in use
  - Agencies should identify a measurement system that provides cost and performance data to evaluate the investment

- Prioritize projects within a portfolio
  - Likely winners
  - Likely drop outs
  - Prospects that warrant a closer look

Planning Phase

- Step 6 - The agency capital plan
  - Executive review process
  - Purpose of the Agency Capital Plan
  - Key elements of the Agency Capital Plan
  - Connecting strategic, annual performance, and capital plans
  - Coordinate with OMB guidance
    - OMB Circular A-11, Part 3

Budgeting Phase

- Step 1 - Agency submission for funding in the budget year
  - Criteria for justification of spending for proposed new capital assets
    - Drawn from the agency capital plan
  - Principles of financing
    - Full funding - regular and advanced appropriations - Separate funding for Information segments - Accommodation of lumpiness or “spikes”
    - Accountability

Procurement Phase

- Step 1 - Validate planning decision
- Step 2 - Managing the procurement risk
  - Avoiding or limiting the amount of development work
  - Make effective use of competition
  - Establish a performance-based acquisition management system that provides for program successes and failures - EVMS

Management-In-Use Phase

- Step 1 - Operational analysis
  - Operations and maintenance cost can equal 80 percent of life-cycle costs
  - Continual analysis against the performance baseline
    - DOE requires operation assessments every six months
  - Conducted in context of the program or project asset supports

Management-In-Use Phase

- Step 2 - Execution of operation and maintenance plan
- Step 3 - Post-implementation evaluation
- Identity whether the asset is performing as planned, ensure continual improvement of capital management process based on lessons learned, and minimize the risk of repeat mistakes
- Step 4. Execution of asset disposal plan

OMB Circular A-11, Part 3

Planning, Budgeting, and Acquisition of Capital Assets

Provides Requirements for Budget Submissions to OMB

New Acquisition Requests

- How asset will help meet gap the agency's ability to meet strategic goals and objectives?
  - Progress in annual performance plan
- Three pesky questions
- Basis for selecting the project extent of market research
  - Extent of market research
  - Emphasis on solutions currently available?

Basis for Selecting Project (cont)

  - If market cannot fulfill the entire performance gap, did agency weigh the extent of capability available against the delay in improvement, risk of failure, and cost of development effort to obtain desired capability?

- Benefit-cost analysis including life cycle cost analysis of alternatives

- Is the asset affordable within budget limits?

Risk Analysis

- Risk analysis
  - If high risk, can project failure be absorbed without loss of service capability or significant effect on the budget?
- What is priority of project within portfolio?
- Other information requested by OMB

- Program management
  - Dedicated program manager and contracting officer
  - IPT

- Contract strategy
  - Performance-based
  - Contract Type
    - Fixed price preferred

Cost, Schedule and Performance Goals

- Provide baseline cost, schedule, and performance goals
  - Will be used in reporting to Congress on achievement of 90 percent of cost and schedule goals and for civilian agencies - 100 percent of performance goals
- Agency planning process is expected to produce acquisition plans win a high probability of achieving goals

Cost, Schedule and Performance Goals (cont)

- Request funding for only the stages where the agency is able to establish realistic goals
- If planning has not progressed to point where the agency is ready to commit to achievement of goals for completion of the acquisition, request funds for planning in alternative exploration stages only

Performance Goals

- Summarize performance goals as stated in the statement of work
- Identify the key programmatic assumptions used to determine performance goals
- How asset will help agency meet GPRA goals

Performance Based Management System

- Identify and discuss PBMS to monitor achievement of, or deviation from baseline goals

- Earned value or other system
  - planned work
  - planned work actually accomplished
  - actual cost of work accomplished
  - establishes the deviation percentages

EVMS on All Types of Contracts

Performance based management systems should be used on both fixed price and cost type contracts. The extent of information on project status and particular cost information should be less on fixed price contacts than on cost type contracts, but monitoring FP contracts is necessary because of the effect of changes on other agency plans and funds

Full Funding

- Agencies are required to request full up-front budget authority for all ongoing and new proposals for fixed assets, or

- At least each stage or economically and programmatically separable segments (or module) of a stage in the acquisition process

Reporting to OMB In-process Acquisitions

- Performance based management system
- Achievement of, or deviation from goals
  - Budget cost of work scheduled
  - Budget cost of work performed
  - Actual cost of work performed
- Best estimate until PBMS in place
- For performance goals, report any contract deviations, modifications, or waivers and estimate percentage change in performance

ON-Going Acquisitions

- Identify current estimates at completion of cost, schedule, and performance achievement

- Provide current variance analysis
  - If not within 90% of original baseline, cost, or schedule goals, give reasons for variance
  - If not meeting performance goals, give reasons for variance

Not Achieving 90% of Goals

- Analysis of deviations and corrective actions needed to achieve baseline goals
- New estimates to complete, if necessary
- Terminate acquisitions that will not achieve reasonable return on investment
- If additional funds needed, describe other items that will be cancelled

Is Project Cost Beneficial?

- Identity corrective actions that have or will be taken
- Identify effect actions will have on baseline goals
- How project will meet goals or how and why goals should be revised and cost benefit analysis with new goals
- OMB must approve revisions to baseline

Measure twice because you can only cut once

Murphy’s Law on Life

Challenge for Group

- Government is now expected to manage capital assets to meet agency strategic goals and objectives within limited budgets
- Fixed price contracts often experience changes to initial cost, schedule, and performance goals
- Develop policy to implement EVMS on Fixed Price Contracts

EVMS in Australia

Van Kinney

Office of the Under Secretary of Defense

(Acquisition & Technology)

Introduction

- History of Australian Earned Value Management (EVM)
- Defence Acquisition Organisation (DAO) structure
- Current initiatives
- Australian industry involvement
- International participation
- Conclusions

History

- 1986 - JPAC Report 243 recommended adoption of C/SCSC for major projects
- 1989 - Formation of dedicated focal point
- 1990 - First company validated
- 1990 - 1993 - Guidance documents developed
- 1992 - Mutual acceptance of validations
- 1993 - Exchange officer program started
- 1995 - Signed EVM MOU with US and Canada
- 1995 - 1997 - Chaired IPMC
- 1997 - EVM moved to Dir. Acq. Mgt. Sys.

DAO
Defence Acquisition Organisation

Deputy Secretary Acquisition

FAS Capital Equipment Program

- Acquisition Planning
- Acq. Finance & Reptg.
- Acq. Corporate Mgmt.

Head DAO DRP Implementation Team

Head Industry & Procurement Infrastructure

- Contr. Pol. & Ops.
- Ind. Pol. & Progs.
- Exports & Intl. Progs.
- Acq. Mgmt. Systems
- DARO / QA Transition

Head Systems Acquisition Electronic Systems

- Commd. & Suppt. Sys.
- Communication Sys.
- EW & Radar Sys.
- Strategic HF Sys.
- Business Management

Head Systems Acquisition Maratime & Ground

- Undersea Warfare Sys.
- Surface Warfare Sys. A
- Surface Warfare Sys. B
- Grnd. & Amphib. Sys.
- Business Management

Head Systems Acquisition Aerospace

- Aerosp. Warfare Sys. A
- Aerosp. Warfare Sys. B
- Aerosp. Warfare Sys. C
- Business Management

Defence Focus

- Early focus was on EVMS implementation
  - Not much expertise was available outside DAMS-EVM
  - DoD data usage and analysis varied
- In 1996, focus changed to improving quality and internal use of EV data
  - Train program office personnel
  - Establish better analytical capability
  - Emphasize timely reports

Current Initiatives

- Payment by Earned Value (EV)
- Contracting for EV services
- Earned Value Leadership Panel (EVLP)
- Review process simplification
- Update policy and implementation guidance

Payment by Earned Value

- Used on all new contracts with EVM requirement
- Payments based on combination of EV progress and key milestones
- In use on a number of major projects:
  - ANZAC Frigates, Mine Hunter Coastal, Hydro Ship, Lead-In-Fighter, ANZAC Helos
- Interim policy in place

Results in better acceptance and use of EV data

Contracting for EV Services

- Create EV Consultancy Panel
- Scope of work would include:
  - EVMS review support
  - Data analysis support
  - Training
  - Studies
- Objective is to enable DAMS-EVM staff to do more project support
- Long-term goal is third party validation

Earned Value Leadership Panel

- Includes Acquisition and Service executives and selected PMs
- Objective is to foster better acceptance and use of EV data in DoD
- Forum to exchange views and ideas
- Accomplishments so far:
  - ➢EV postings to the Services
  - ➢Higher management is gaining a better understanding of EVM

Review Process Simplification

- Use of IBR
  - More project involvement
  - Emphasis is on realistic baselines
  - Does not replace validation reviews
  - Reduction in post validation reviews
- Simplified review reports
- Involvement from outside DAMS-EVMS
- Company EVMS representative on team
- Joint surveillance

Update Policy and Guidance

- Aust. Cost Schedule Implementation Guide is being updated
- Cost Schedule Status Report Implementation Guide is being updated by APMA working group
- CSCSC and payment by EV contract clauses are next
  - ➢DEFPUR 101 contains contract clauses

Other Initiatives

- Scheduling Data Item Description is being finalized
- Link risk management with EVM
- Continue to promote EVM in the project offices
- Establish centers of excellence in Tech Domains
- Develop an Industry EVM standard
- Use EV data for Defence funding forecasts
- Promote use of commercial software analysis tools
- Encourage submission of EV data via EDI

Australian Industry Involvement

- EVM used on numerous non-defense projects
- Australian Institute of Project Management still considering integration of EVM into body of knowledge
- DAMS-EVMS is working with Standards Australia to create a national standard
  - ➢ May use ANSI standard as a starting point

International Participation

- Original member of International Performance Management Council
  - ➢ Chaired IPMC from 1995 - 1997
  - ➢ Current representative is Mr. Subhash Dang
- Active in exchanging views and personnel
- Supportive of international aspects of EVM
  - ➢ Procuring materiel from several foreign sources

Conclusions

- Australia has made a lot of progress in a relatively short time
- Learn from Australia's experiences:
  - Payment by EV
  - EVMS on firm-fixed price contracts
  - International EVMS applications
- Continue productive exchange of people and ideas

Where to Find Info on Australian EVM

Australian EVM web site:

http://www.iic.spirit.net.au/ams

Australian PMA web site:

http://www.austpma.org.au

Earned Value Management on Firm Fixed Price Contracts: The DoD Perspective

Van Kinney

Office of the Under Secretary of Defense

(Acquisition & Technology)

Contracting Policy

- Select contract type based on risk (FAR 16)
- Use of fixed price contracts on development or on contracts for first ship of a class requires USD(A&T) approval (DoD 5000.2, DFARS 235.006)

Acquisition requirements usually result in FFP being used only on contracts with minimal risk.

EVMS Criteria Policy (DoD 5000.2-R)

- Compliance with EVMS criteria required on major contracts
  - R&D >$70M*
  - Procurement >$300M*
- May be required on smaller contracts at management discretion
  - High risk or management interest

* FY 96 constant $

FFP EVMS Policy (DoD 5000.2-R)

- EVMS **discouraged** for FFP
  - Requires exception by Milestone Decision Authority
  - EVMS not considered necessary for low risk contracts
- But PMs should exercise judgment
  - May be appropriate on critical contracts

Use of EVMS Criteria on FFP Contracts - Why Do It?

- Contractor point of view:
  - Use enterprise-wide management systems
- Government point of view:
  - Provide contract administration tool to assess payments
- Common points of view:
  - Provide integrated schedule status
  - Important to manage resources well
  - EVMS Criteria = good management

Reporting Considerations

- Less information should be required
- Reporting needs should flow from reasons for application
  - Support progress payments
  - Integrate schedule status
  - Inform management

Other Considerations

- Perceived / real inhibitor to market entry by commercial firms?
- Validation?
- Integrated Baseline Reviews?
- Differing agency interpretations?
- Judgment vs regulation
  - Risk based application